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2		CCSS.Math.Content	2.NBT.B.5, 2.OA.A.1
4		CCSS.Math.Content	2.NBT.B.7
3	1 pt. for graphing, 1 pt.	CCSS.Math.Content	3.MD.B.3
6		CCSS.Math.Content	3.MD.B.3
2		CCSS.Math.Content	3.OA.A.1
2		CCSS.Math.Content	3.OA.A.3
1		CCSS.Math.Content	3.OA.A.3
3		CCSS.Math.Content	3.OA.A.3
5		CCSS.Math.Content	3.OA.A.4
5	5 pts total. 1 point for th	CCSS.Math.Content	3.md.b.3
4		CCSS.Math.Content	3.md.b.3
5		CCSS.Math.Content	3.oa.a.1
4		CCSS.Math.Content	3.oa.a.3
2		CCSS.Math.Content	3.oa.a.1
4		CCSS.Math.Content	3.oa.a.3
5		CCSS.Math.Content	3.MD.C.5.b, 3.MD.C.7.b
2		CCSS.Math.Content	3.MD.C.5, 3.MD.C.6

5		CCSS.Math.Content	3.MD.C.5, 3.MD.C.7.b
2		CCSS.Math.Content	3.MD.C.7.a, 3.MD.C.7.b, 3.MD.C.7.c
2		CCSS.Math.Content	3.MD.C.7.a, 3.MD.C.7.b, 3.MD.C.7.c
4		CCSS.Math.Content	3.OA.C.7
5		CCSS.Math.Content	3.MD.C.7.b, 3.MD.C.7.d
2		CCSS.Math.Content	3.md.c.6
2	1 pt. for partial credit	CCSS.Math.Content	3.md.c.5
2		CCSS.Math.Content	3.md.c.5.b
5		CCSS.Math.Content	3.md.c.7
3		CCSS.Math.Content	3.md.c.7.b
1		CCSS.Math.Content	3.md.c.7.c
2		CCSS.Math.Content	3.md.c.7.d
2		CCSS.Math.Content	3.md.c.7.d
5		CCSS.Math.Content	3.OA.D.9
4		CCSS.Math.Content	3.NBT.A.2
4		CCSS.Math.Content	3.NBT.A.2
4		CCSS.Math.Content	3.NBT.A.2
5		CCSS.Math.Content	3.NBT.A.1
1		CCSS.Math.Content	3.OA.D.8
4		CCSS.Math.Content	3.OA.D.8
4	1 pt. for partial credit on	CCSS.Math.Content	3.nbt.a.2
2		CCSS.Math.Content	3.nbt.a.2
4	1 pt. for partial credit on	CCSS.Math.Content	3.nbt.a.2
2		CCSS.Math.Content	3.nbt.a.2
4		CCSS.Math.Content	3.nbt.a.1
4		CCSS.Math.Content	3.nbt.a.1
2		CCSS.Math.Content	3.nbt.a.1
2		CCSS.Math.Content	3.oa.d.8
3		CCSS.Math.Content	3.oa.d.8
5		CCSS.Math.Content	3.OA.C.7
5		CCSS.Math.Content	3.OA.A.2, 3.OA.B.6
6		CCSS.Math.Content	3.OA.A.2, 3.OA.B.6

4		CCSS.Math.Content	3.OA.A.3, 3.OA.A.4, 3.OA.B.6
3		CCSS.Math.Content	3.OA.B.5, 3.OA.C.7
6		CCSS.Math.Content	3.NBT.A.3, 3.OA.B.5
5		CCSS.Math.Content	3.OA.D.8
3		CCSS.Math.Content	3.oa.a.2
2		CCSS.Math.Content	3.oa.a.2
5		CCSS.Math.Content	3.oa.a.2, 3.oa.b.6
2	1 pt. for partial credit	CCSS.Math.Content	3.oa.b.5
3		CCSS.Math.Content	3.oa.c.7
2		CCSS.Math.Content	3.nbt.a.3
2		CCSS.Math.Content	3.oa.b.5
3		CCSS.Math.Content	3.oa.d.8
4		CCSS.Math.Content	3.oa.a.2
2		CCSS.Math.Content	3.oa.d.8
1		CCSS.Math.Content	3.G.A.2, 3.NF.A.1
4		CCSS.Math.Content	3.NF.A.2.a, 3.NF.A.2.b
5		CCSS.Math.Content	3.NF.A.1, 3.NF.A.3.b
1		CCSS.Math.Content	3.NF.A.3.a, 3.NF.A.3.c
2		CCSS.Math.Content	3.NF.A.3.b
1		CCSS.Math.Content	3.NF.A.3.c
5		CCSS.Math.Content	3.NF.A.3.d
4		CCSS.Math.Content	3.NF.A.2.a, 3.NF.A.2.b, 3.NF.A.2.c
5		CCSS.Math.Content	3.nf.a.1
2	1 pt. for partial credit	CCSS.Math.Content	3.nf.a.1
1		CCSS.Math.Content	3.nf.a.2.a
2		CCSS.Math.Content	3.nf.a.2.b
2		CCSS.Math.Content	3.nf.a.2.b
5		CCSS.Math.Content	3.nf.a.3.d
1		CCSS.Math.Content	3.nf.a.3.a
4		CCSS.Math.Content	3.nf.a.3.c
4		CCSS.Math.Content	3.nf.a.3.d
2		CCSS.Math.Content	3.nf.a.3.d

1		CCSS.Math.Content	3.MD.B.4
6		CCSS.Math.Content	3.MD.A.2
5		CCSS.Math.Content	3.MD.A.1
2	1 pt. partial credit, 2 pts	CCSS.Math.Content	3.MD.B.4
4		CCSS.Math.Content	3.MD.A.2
2		CCSS.Math.Content	3.MD.A.2
4		CCSS.Math.Content	3.MD.A.2, 3.OA.A.3
1		CCSS.Math.Content	3.md.b.4
2	2 pts: all or most correct	CCSS.Math.Content	3.md.b.4
1		CCSS.Math.Content	3.md.a.2
5		CCSS.Math.Content	3.md.a.2
5		CCSS.Math.Content	3.md.a.2
1		CCSS.Math.Content	3.md.a.1
2		CCSS.Math.Content	3.md.a.1
1		CCSS.Math.Content	3.md.a.2
2		CCSS.Math.Content	3.md.a.2
2		CCSS.Math.Content	3.G.A.1
6		CCSS.Math.Content	3.G.A.1
2		CCSS.Math.Content	3.G.A.1, 3.MD.D.8
1		CCSS.Math.Content	3.MD.D.8
5		CCSS.Math.Content	3.G.A.1, 3.MD.D.8
4	1 pt. for each shape that	CCSS.Math.Content	3.MD.D.8
5		CCSS.Math.Content	3.MD.C.7, 3.MD.D.8
2		CCSS.Math.Content	3.g.a.1
4		CCSS.Math.Content	3.g.a.1
1		CCSS.Math.Content	3.md.d.8
2		CCSS.Math.Content	3.md.d.8
2		CCSS.Math.Content	3.md.d.8
2		CCSS.Math.Content	3.md.d.8
4	1 pt. for drawing accurate	CCSS.Math.Content	3.md.d.8
2		CCSS.Math.Content	3.md.d.8
2		CCSS.Math.Content	3.md.d.8

5		CCSS.Math.Content	3.MD.C.5, 3.MD.C.6, 3.MD.C.
5		CCSS.Math.Content	3.NF.A.2.a, 3.NF.A.2.b
4		CCSS.Math.Content	3.OA.D.9
6		CCSS.Math.Content	3.NF.A.3.a, 3.NF.A.3.d
6		CCSS.Math.Content	3.OA.B.5
18		CCSS.Math.Content	3.MD.C.7.a, 3.OA.B.5, 3.OA.B
7	Part 1: 2 pts, Part 2: 1 p	CCSS.Math.Content	3.MD.C.7, 3.NF.A.3, 3.OA.C.7
2		CCSS.Math.Content	3.NBT.A.2
4		CCSS.Math.Content	3.OA.A.2
2		CCSS.Math.Content	3.MD.C.7.b, 3.MD.C.7.d, 3.OA
1		CCSS.Math.Content	3.MD.A.1
2		CCSS.Math.Content	3.MD.A.2, 3.OA.A.4
2		CCSS.Math.Content	3.OA.A.1, 3.OA.A.2, 3.OA.A.4
4		CCSS.Math.Content	3.OA.A.3, 3.OA.B.6, 3.OA.C.7
2		CCSS.Math.Content	3.OA.C.7, 3.OA.D.8
5		CCSS.Math.Content	3.NF.A.2, 3.NF.A.3.c
5		CCSS.Math.Content	3.NF.A.1, 3.NF.A.3.b
4		CCSS.Math.Content	4.OA.B.4
5		CCSS.Math.Content	4.OA.B.4
5	1 pt. for each factor pair	CCSS.Math.Content	4.OA.B.4
6		CCSS.Math.Content	4.OA.B.4
2		CCSS.Math.Content	4. oa. b.4
4		CCSS.Math.Content	4. oa. b.4
2		CCSS.Math.Content	4. oa. b.4
2		CCSS.Math.Content	4. oa. a.2
8	1 pt. for factor pair	CCSS.Math.Content	4. oa. b.4
4		CCSS.Math.Content	4. oa. b.4
5		CCSS.Math.Content	4.NF.A.1
5		CCSS.Math.Content	4.NF.A.2
1		CCSS.Math.Content	4.NF.A.2
4	1 pt. for each equivalent	CCSS.Math.Content	4.NF.A.1
2		CCSS.Math.Content	4.NF.A.1

2	1 pt. for correct order, 1	CCSS.Math.Content	4.NF.A.1, 4.NF.A.2
5		CCSS.Math.Content	4.NF.A.1
4		CCSS.Math.Content	4.NF.A.2
2		CCSS.Math.Content	3.nf.a.2.b
2		CCSS.Math.Content	4.nf.a.2
1		CCSS.Math.Content	4.nf.a.1
3		CCSS.Math.Content	4.nf.a.1
3		CCSS.Math.Content	4.nf.a.1
2	1 pt. for partial credit of	CCSS.Math.Content	4.nf.a.1
8		CCSS.Math.Content	4.nf.a.1
1		CCSS.Math.Content	4.nf.a.2
5		CCSS.Math.Content	4.NF.B.3.a, 4.NF.B.3.b
5		CCSS.Math.Content	4.NF.B.3.c, 4.NF.B.4.a, 4.NF.
5		CCSS.Math.Content	4.NF.B.4.a, 4.NF.B.4.b
2	1 pt. for partial credit of	CCSS.Math.Content	4.MD.A.2, 4.NF.B.4.c
5	Part 1: 1 pt. for differen	CCSS.Math.Content	4.MD.B.4
5		CCSS.Math.Content	4.NF.B.3, 4.NF.B.4
3		CCSS.Math.Content	4.NF.C.5
6	Part 1: 2 pts., Part 2: 2	CCSS.Math.Content	4.MD.A.2, 4.NF.B.3.c, 4.NF.
5		CCSS.Math.Content	4.nf.b.3.b
5		CCSS.Math.Content	4.nf.b.4.a, 4.nf.b.4.b
2		CCSS.Math.Content	4.nf.b.4.b
5		CCSS.Math.Content	4.nf.b.3.b
4		CCSS.Math.Content	4.nf.b.3.c
4		CCSS.Math.Content	4.md.b.4
5		CCSS.Math.Content	4.nf.c.5
4		CCSS.Math.Content	4.nf.c.5
4		CCSS.Math.Content	4.nf.b.3.b
5		CCSS.Math.Content	4.NBT.A.2
3		CCSS.Math.Content	4.NBT.A.2
2		CCSS.Math.Content	4.NBT.A.1
6		CCSS.Math.Content	4.NF.C.5, 4.NF.C.6

2		CCSS.Math.Content	4.NBT.B.4
2		CCSS.Math.Content	4.NF.C.7
5		CCSS.Math.Content	4.NBT.A.3
6		CCSS.Math.Content	4.NBT.B.4
2		CCSS.Math.Content	4.NF.C.6
5		CCSS.Math.Content	4.NF.C.7
1		CCSS.Math.Content	4.NF.C.7
2		CCSS.Math.Content	4.NBT.A.2
6		CCSS.Math.Content	4.NBT.A.2
1		CCSS.Math.Content	4.NBT.A.1
2	1 pt. for partial credit	CCSS.Math.Content	4.NBT.A.2
3		CCSS.Math.Content	4.NBT.A.3
2		CCSS.Math.Content	4.NBT.B.4
2		CCSS.Math.Content	4.NBT.B.4
3		CCSS.Math.Content	4.OA.A.1, 4.OA.A.2
5		CCSS.Math.Content	4.MD.A.1
1		CCSS.Math.Content	4.MD.A.1
5		CCSS.Math.Content	4.MD.A.3
5		CCSS.Math.Content	4.MD.A.1, 4.NBT.B.5
2		CCSS.Math.Content	4.MD.A.1
5		CCSS.Math.Content	4.MD.A.2
2		CCSS.Math.Content	4.OA.A.1
2		CCSS.Math.Content	4.OA.A.1
2		CCSS.Math.Content	4.OA.A.1, 4.oa.a.3
2		CCSS.Math.Content	4.md.a.2
1		CCSS.Math.Content	4.md.a.2, 4.md.a.1
2		CCSS.Math.Content	4.md.a.2
2		CCSS.Math.Content	4.md.a.2
2		CCSS.Math.Content	4.md.a.3
5		CCSS.Math.Content	4.OA.C.5
1		CCSS.Math.Content	4.NBT.B.5
1		CCSS.Math.Content	4.NBT.B.6

4		CCSS.Math.Content	4.NBT.B.5
4		CCSS.Math.Content	4.NBT.B.6
4		CCSS.Math.Content	4.NBT.B.5, 4.NBT.B.6, 4.OA
2		CCSS.Math.Content	4.OA.A.3
6		CCSS.Math.Content	4.MD.A.1, 4.MD.A.3, 4.NBT
5		CCSS.Math.Content	4.OA.C.5
4	1 pt. for each number, 1	CCSS.Math.Content	4.OA.C.5
2		CCSS.Math.Content	4.NBT.B.5
2		CCSS.Math.Content	4.NBT.B.5
2		CCSS.Math.Content	4.NBT.B.5
2		CCSS.Math.Content	4.NBT.B.6
2	1 pt. partial credit	CCSS.Math.Content	4.NBT.B.6
2		CCSS.Math.Content	4.NBT.B.6
2		CCSS.Math.Content	4.md.a.3
4		CCSS.Math.Content	4.OA.A.3
5		CCSS.Math.Content	4.G.A.1
5		CCSS.Math.Content	4.MD.C.5, 4.MD.C.7
6		CCSS.Math.Content	4.MD.C.7
1		CCSS.Math.Content	4.MD.C.6
2		CCSS.Math.Content	4.MD.C.5, 4.MD.C.7
4		CCSS.Math.Content	4.MD.C.6, 4.MD.C.7
3		CCSS.Math.Content	4.MD.C.5, 4.MD.C.7
3		CCSS.Math.Content	4.G.A.1
2		CCSS.Math.Content	4.G.A.1
4		CCSS.Math.Content	4.MD.C.5
2		CCSS.Math.Content	4.MD.C.6
1		CCSS.Math.Content	4.MD.C.6
4		CCSS.Math.Content	4.MD.C.7
4		CCSS.Math.Content	4.G.A.2
4		CCSS.Math.Content	4.MD.C.7
5		CCSS.Math.Content	4.G.A.2
1		CCSS.Math.Content	4.G.A.2, 4.G.A.3

4		CCSS.Math.Content	4.G.A.2
5		CCSS.Math.Content	4.G.A.2
5	1 pt. for each line, 1 pt.	CCSS.Math.Content	4.G.A.3
6		CCSS.Math.Content	4.G.A.3, 4.MD.A.3
2	1 pt. for partial credit	CCSS.Math.Content	4.G.A.2
2		CCSS.Math.Content	4.G.A.2
5	1 pt each line, 1 pt for k	CCSS.Math.Content	4.G.A.3
2		CCSS.Math.Content	4.MD.A.3
2		CCSS.Math.Content	4.MD.A.3
1		CCSS.Math.Content	4.NBT.A.1
4		CCSS.Math.Content	4.NF.C.5, 4.NF.C.6
4		CCSS.Math.Content	4.MD.B.4, 4.NF.B.3.c
7		CCSS.Math.Content	4.NF.B.3.b, 4.NF.B.4.b
4		CCSS.Math.Content	4.NF.B.3.d, 4.NF.B.4.c
3		CCSS.Math.Content	4.NF.B.3.b, 4.NF.B.3.c, 4.NF
5		CCSS.Math.Content	4.NBT.B.4
9		CCSS.Math.Content	4.NBT.B.4
7		CCSS.Math.Content	4.MD.A.2, 4.NF.B.3, 4.NF.B.
8		CCSS.Math.Content	4.MD.A.1, 4.MD.A.2, 4.NBT
2		CCSS.Math.Content	4.NBT.A.1
5		CCSS.Math.Content	4.NBT.A.2
3		CCSS.Math.Content	4.NBT.A.3
2		CCSS.Math.Content	4.NBT.B.5, 4.OA.A.2
2		CCSS.Math.Content	4.NBT.B.5, 4.OA.A.3
2		CCSS.Math.Content	4.NBT.B.6, 4.OA.A.2
5		CCSS.Math.Content	4.NF.A.1
7		CCSS.Math.Content	4.NF.A.2, 4.NF.C.6, 4.NF.C.7
5		CCSS.Math.Content	5.MD.C.5.a, 5.OA.A.2
2		CCSS.Math.Content	5.MD.C.5.c
5		CCSS.Math.Content	5.MD.C.5.a, 5.OA.A.2
2		CCSS.Math.Content	5.MD.C.5.b
2		CCSS.Math.Content	5.MD.C.5.c

1		CCSS.Math.Content	5.MD.C.3.b, 5.MD.C.4
2	1 pt. for partial credit	CCSS.Math.Content	5.MD.C.5.c
2		CCSS.Math.Content	5.md.c.4
4		CCSS.Math.Content	5.md.c.5.a
2	1 pt. for partial credit	CCSS.Math.Content	5.md.c.5.b
2		CCSS.Math.Content	5.md.c.5.a
2	1 pt. for partial credit	CCSS.Math.Content	5.md.c.5.b
5		CCSS.Math.Content	5.md.c.5.b
4		CCSS.Math.Content	5.md.c.5.c
2		CCSS.Math.Content	5.md.c.5
2		CCSS.Math.Content	5.NF.B.4.b
6		CCSS.Math.Content	5.NF.B.4.b, 5.OA.A.2
1		CCSS.Math.Content	5.NF.B.4.a, 5.NF.B.6
5		CCSS.Math.Content	5.NF.B.3
4		CCSS.Math.Content	5.NF.B.4.a, 5.NF.B.6
4		CCSS.Math.Content	5.NF.B.4
5		CCSS.Math.Content	5.NF.B.3, 5.NF.B.4.a, 5.NF.B.6
2		CCSS.Math.Content	5.nf.b.6
2		CCSS.Math.Content	5.nf.b.6
2	1 pt. for partial credit	CCSS.Math.Content	5.nf.b.3
4		CCSS.Math.Content	5.nf.b.3
3		CCSS.Math.Content	5.nf.b.3
6		CCSS.Math.Content	5.nf.b.4.b
2		CCSS.Math.Content	5.nf.b.6
5		CCSS.Math.Content	5.nf.b.7.c
5		CCSS.Math.Content	5.NF.B.4.a, 5.NF.B.7.a, 5.OA.A.2
4	1 pt. for each match	CCSS.Math.Content	5.NF.B.7.a, 5.NF.B.7.b
2		CCSS.Math.Content	5.NF.B.7.b, 5.NF.B.7.c
4		CCSS.Math.Content	5.NF.B.4
2		CCSS.Math.Content	5.NF.B.7.a, 5.NF.B.7.c
2		CCSS.Math.Content	5.NF.B.6
5		CCSS.Math.Content	5.NF.B.6

2		CCSS.Math.Content	5.NF.B.6
3		CCSS.Math.Content	5.nf.b.4.b
2		CCSS.Math.Content	5.nf.b.4.a
2		CCSS.Math.Content	5.nf.b.6
3		CCSS.Math.Content	5.nf.b.7.a
2		CCSS.Math.Content	5.nf.b.7.b
4		CCSS.Math.Content	5.nf.b.7.c
2		CCSS.Math.Content	5.nf.b.7.c
4		CCSS.Math.Content	5.NBT.B.5
5		CCSS.Math.Content	5.NBT.B.6
1		CCSS.Math.Content	5.NBT.A.1, 5.NBT.B.6
2		CCSS.Math.Content	5.NBT.B.6
2		CCSS.Math.Content	5.NBT.B.6
4		CCSS.Math.Content	5.MD.C.5, 5.NBT.B.5
4	1 pt. for partial credit on	CCSS.Math.Content	5.nbt.b.5
4	part 1: 2 points, part 2:	CCSS.Math.Content	5.nbt.b.5
2		CCSS.Math.Content	5.nbt.b.6
2		CCSS.Math.Content	5.nbt.b.6
3		CCSS.Math.Content	5.nbt.b.5
2		CCSS.Math.Content	5.md.c.5
6		CCSS.Math.Content	5.NBT.A.3.b
5		CCSS.Math.Content	5.NBT.A.3.a
4	1 pt. for each answer, 1	CCSS.Math.Content	5.NBT.A.4
4		CCSS.Math.Content	5.NBT.B.7
1		CCSS.Math.Content	5.NBT.A.1
6		CCSS.Math.Content	5.NBT.B.7
6		CCSS.Math.Content	5.NBT.B.7
6		CCSS.Math.Content	5.NBT.B.7
5		CCSS.Math.Content	5.nbt.a.3.a
2	1 pt. for partial credit	CCSS.Math.Content	5.nbt.a.3.b
3		CCSS.Math.Content	5.nbt.a.4
2		CCSS.Math.Content	5.nbt.b.7

6		CCSS.Math.Content	5.nbt.b.7
2		CCSS.Math.Content	5.nbt.b.7
2	1 pt. for partial credit	CCSS.Math.Content	5.nbt.b.7
2		CCSS.Math.Content	5.nbt.b.7
1		CCSS.Math.Content	5.nbt.b.7
2		CCSS.Math.Content	5.nbt.b.7
1		CCSS.Math.Content	5.nbt.a.1
6		CCSS.Math.Content	5.MD.A.1, 5.NBT.A.2
1		CCSS.Math.Content	5.NF.B.5.b
6		CCSS.Math.Content	5.NF.A.1
3		CCSS.Math.Content	5.NF.A.1
3		CCSS.Math.Content	5.NF.B.5.a
2		CCSS.Math.Content	5.NF.B.5.a
5		CCSS.Math.Content	5.MD.B.2, 5.NF.A
5	Part 1 and 2: 1 pt., Part	CCSS.Math.Content	5.NF.A.2
6		CCSS.Math.Content	5.md.A.1
5		CCSS.Math.Content	5.nbt.a.2
1		CCSS.Math.Content	5.md.A.1
2		CCSS.Math.Content	5.nf.a.2
2		CCSS.Math.Content	5.nf.a.1
2		CCSS.Math.Content	5.md.b.2
3		CCSS.Math.Content	5.nf.b.5.a
1		CCSS.Math.Content	5.nf.b.5.a
5		CCSS.Math.Content	5.G.A.1
3		CCSS.Math.Content	5.G.A.1, 5.G.B.4
4		CCSS.Math.Content	5.G.B.3, 5.G.B.4
5		CCSS.Math.Content	5.G.B.4
3	1 pt. for each part	CCSS.Math.Content	5.G.B
4		CCSS.Math.Content	5.G.A.1
5		CCSS.Math.Content	5.OA.B.3

7	Part 1: 2 pts., Part 2: 2	CCSS.Math.Content	5.G.A.2
5		CCSS.Math.Content	5.g.a.1
3		CCSS.Math.Content	5.g.a.1
5		CCSS.Math.Content	5.g.a.1, 5.g.b.4
4	4 points for each questi	CCSS.Math.Content	5.g.b.3
3		CCSS.Math.Content	5.g.b.4
6	2 pts. for each part, par	CCSS.Math.Content	5.g.a.2
3		CCSS.Math.Content	5.g.a.2
5		CCSS.Math.Content	5.MD.C.5.a, 5.MD.C.5.b, 5.C
2		CCSS.Math.Content	5.NF.B.4, 5.NF.B.6
6	2 pts. per part	CCSS.Math.Content	5.NBT.A.3.b
8		CCSS.Math.Content	5.NBT.A.1, 5.NBT.A.2, 5.NB
2	1 pt. for partial credit	CCSS.Math.Content	5.NBT.B.5, 5.OA.A.1, 5.OA.A
9		CCSS.Math.Content	5.NBT.B.5
3	Score based on studen	CCSS.Math.Content	5.G.A.2, 5.NBT.B.7, 5.NF.A.1
3	Score based on studen	CCSS.Math.Content	5.NF.A.1, 5.NF.B.4
6		CCSS.Math.Content	5.MD.A.1, 5.MD.C.5, 5.NBT
2		CCSS.Math.Content	5.MD.C.5.c, 5.NBT.B.5
5		CCSS.Math.Content	5.NF.A.1
5		CCSS.Math.Content	5.NF.B.3, 5.NF.B.4, 5.NF.B.5
4		CCSS.Math.Content	5.NF.B.4, 5.NF.B.7.c
3	Part 1: 2 pts., Part 2: 1	CCSS.Math.Content	5.NF.A.2
7		CCSS.Math.Content	5.NBT.A.2, 5.NBT.A.3
4		CCSS.Math.Content	5.NBT.B.6
8		CCSS.Math.Content	5.NBT.B.7
3		CCSS.Math.Content	5.nf.b.4.a
4		CCSS.Math.Content	K.CC.A.3, K.CC.B.5
1		CCSS.Math.Content	K.CC.A.3, K.CC.B.5
2		CCSS.Math.Content	K.CC.C.6
2		CCSS.Math.Content	K.CC.C.7
5		CCSS.Math.Content	K.CC.A.3

5		CCSS.Math.Content	K.G.A.2
6		CCSS.Math.Content	K.CC.B.5, K.G.A.1, K.G.A.2
2		CCSS.Math.Content	K.MD.A.2
4	1 pt. for partial credit on	CCSS.Math.Content	K.G.A.2
2		CCSS.Math.Content	K.CC.C.6
4		CCSS.Math.Content	K.OA.A.1
3		CCSS.Math.Content	K.OA.A.5
4		CCSS.Math.Content	K.CC.B.5, K.G.B.6, K.OA.A.2
3		CCSS.Math.Content	K.NBT.A.1, K.OA.A
2		CCSS.Math.Content	K.CC.C.7
3		CCSS.Math.Content	K.OA.A.4
3		CCSS.Math.Content	K.CC.A.3, K.CC.B.5
4		CCSS.Math.Content	K.NBT.A.1
2		CCSS.Math.Content	K.OA.A.1, K.OA.A.2
2		CCSS.Math.Content	K.OA.A.2, K.OA.A.4
4		CCSS.Math.Content	K.CC.B.4.c, K.OA.A.2

Question Description

Students add or subtract 1 or 2 from a number within 10. They may use any method that makes sense to them including using objects, 10-frames, or fingers.

Students find the value of sums and differences within 10 with no context. They may use any method that makes sense to them including using objects, 10-fr

Students interpret a categorical table with tally marks. They read the data and use the data to find how many total shapes are on Jada's desk. They can find t

Students use an image of pattern blocks to complete a table to represent how the blocks could be sorted. The shapes are organized in groups and laid out in

Students use an image to explain how to find the difference between two quantities. They may interpret the image in different ways. For example, students m

Students solve a Put Together, Addend Unknown problem. The total in this case is 10, so in addition to strategies such as drawing a picture and counting on

Students solve a Compare, Difference Unknown story problem within 10. They may solve this problem in a variety of ways, including:

Students choose equations which match an Add To, Change Unknown story problem. Students may select A or E if they think that they need to add 2 and 8,

Students identify which addition and subtraction equations are true. Students may select B or E if they confuse the operations of addition and subtraction. The

Students find the missing number to make addition equations true. They recognize that operations can be on either side of the equal sign. They may relate su

Students select different representations of a number within 20, including double 10-frames, expressions, and connecting cubes. Students may select the 10-

Students find the numbers that make addition and subtraction equations within 20 true. No explanation or reasoning is solicited here as students will have opp

Students add 3 numbers within 20. While students can add the numbers together in any order, the numbers are chosen so that two of them combine to make

Given the emphasis in this unit on the importance of 10 for these sums, expect many students to use the

Students use an addition fact in order to calculate a difference. The addition and subtraction expressions are presented with symbols and no context so stude

Students solve a Start Unknown problem. Students may perform the wrong operation, subtracting 6 from 9 instead of adding. Students who make this error n

Students find the value of sums and differences within 20. No explanation is expected. The problems cover several important skills: fluency within 10 (first an

Students write a number to represent the amount shown in different representations. Three of the examples, the first, fourth, and fifth, are presented with tens

Students find different ways to represent 53. Students may not select A because the ones are listed before the tens. They may select B if they switch the mea

Students solve equations with the unknown in different locations where some tens are added to or subtracted from a two-digit number to give another two-dig

Students compare two numbers within 100. They do this both by choosing which of two numbers is greater and using the symbols $>$, $=$, $<$. Students may use any

Students write the two numbers that come before 80 and the two numbers that come after 80 in the count sequence. For the numbers that come after 80 they

Students relate the count sequence to the order of numbers. While they do not need to use the signs $<$ and $>$ to explain their reasoning, students will likely co

Students add different multiples of 10 to a given number. No reasoning is requested and the expectation is that students will do these problems mentally by c

Students select expressions that are equivalent to a given expression. While they can find the value of each expression, the given expressions are chosen to

Students find sums of numbers using any method they choose. They may use drawings, words, or equations to show their thinking. The problems grow in cor

Students analyze incorrect reasoning presented with equations. The mistake here is that the student adds the digits in the tens place and does not give them

Students compare the lengths of rectangles. The rectangles do not have the same orientation and are not lined up end to end. Students should have access t

Students measure the length of a rectangle using connecting cubes. They will need to count only the connecting cubes that go from the beginning of the recta

Students compare the length of two objects by comparing both with a third object. Because they are not actually measuring the objects in question, students c

Students identify the number of objects in a collection between 100 and 120, grouped as 10 tens and some ones. If students miscount the towers of ten they

Students subtract within 20 to solve a Compare problem with the smaller value unknown, in a measurement context. They may draw a picture, count back, or

Students write an equation to represent a Start Unknown story problem and then they find the solution to the problem. Some students may write the equation

Students identify triangles. Students may select B if they see three "sides" but do not identify that there are rounded corners. Students may not select A beca

Students draw different shapes using dot paper. They may draw one shape and label it both a square and a rectangle but are more likely to draw two differen

Students shade half of a circle and a quarter of a square. They may divide the square horizontally and vertically or along both diagonals. The parts may not be

Students identify whether or not the same amount of a square is shaded. They are given two images of the same size square with half of one square shaded

Students read time from clocks. Students may select the distractor A because it has the digit 5. The distractor D has the hour and minute hands reversed so

Students tell time from an analog clock and write the digital time to match. They also draw hands on an analog clock to represent a given time. For the secon

Students identify the number of connecting cubes in different images. This item assesses their ability to see the tens and ones and understand that the digits

Students find the number that makes addition and subtraction equations within 20 true. The unknown is placed in all different positions.

Students compare two-digit numbers using $<$ and $>$. The first item checks that students distinguish properly between the tens and ones digits. The second item

one direction. If they were put together, they would be

objects using a third object and also assesses their

This item addresses adding or subtracting 10 from a 2-digit number. The standard calls for students to be able to do these problems mentally. While it is not

Students demonstrate fluency for addition and subtraction within 10 and also work on sums of single-digit numbers. Here no reasoning is requested as these

Students compare the value of a sum with a two-digit number using $=$, $>$, and $<$. The first two items add a number of tens to a two-digit number. Students can per

to choose their numbers. There are many approaches

Students find the value of expressions within 20 and explain their thinking. They may use equations or draw pictures. The first two problems are closely relate

Students find the value of sums and differences within 100. The first two problems assess student understanding that the digit in the tens place represents the

Students solve a Compare, Difference Unknown story problem. Students may subtract 9 from 17 without understanding why this gives the answer to the prob

Students solve a Put Together, Addend Unknown story problem. If students misread the problem, they may answer 19, thinking that there are 12 beads of on

Students solve a Take Away, Result Unknown story problem. As for other story problems, they may draw a picture, or write an equation. If they do not draw a

Students add 3 numbers within 20 to solve a story problem. Students may solve in any way that makes sense to them including using objects or drawings. Sc

Students make sense of two different ways to subtract from a teen number. Both methods focus on the relationship between the two numbers as opposed to

Students select correct equations. Students who select $6+6 = 14$ are probably thinking of the fact that $7+7 = 14$ Students who select $18-13 = 15$ have likely for

Students subtract numbers in a data context reading the information from a bar graph. Students may select answer A if they compare red and green sheets o

Students are given data in a table and they create a graph. They may choose to make a picture graph or a bar graph. They are given a pre-made template for

Students find the missing value to make equations true. This problem gives students the opportunity to perform arithmetic without needing to consider a conte

Students are provided information in a bar graph. They will need to read the bar graph accurately and solve addition and subtraction problems based on the d

Students solve a Compare Smaller Unknown story problem. They may subtract by place value without decomposing a ten. Students may find the sum $48 + 2$

Students interpret a partially filled in bar graph and then solve problems about and complete the graph. The main arithmetic part of the problem is a Put Together

Students evaluate expressions where a multiple of 10 is added to or subtracted from a two-digit number. While it is not possible to know if students performed

Students solve a two-step Add To followed by Take From problem within 50. Regrouping is not needed for the first operation, but it is required for the second

Students find the value of an addition expression and a subtraction expression using a method of their choosing. Both problems involve composing or decomposing

Students have seen different ways to subtract where a ten is decomposed. The method presented here shows a ten decomposed into 10 ones and then the ones are subtracted

Students evaluate addition and subtraction expressions using any method they like. Students are not expected to explain their reasoning though they may make

the third. The first question is intended to familiarize students with the information and the second question complements the addition for the final question

The goal of this item is to assess familiarity with standard units of measure and estimating heights. Students who select A do not understand the size of a centimeter

Students are asked to compare the length of the same object in two standard units of measure, centimeters and inches. They need to know that a centimeter is

Students add data to a line plot. The line plot has a label but no numbers have been recorded on the line, and students need to think strategically about which

Students measure and compare the lengths of two rectangles in centimeters. If they make a measurement error then their answer will reflect that. While both

Students solve a two-step addition problem with a measurement context. Because their answer to the second problem depends on the answer to the first problem

Students solve a problem about distance estimates and how they differ from an actual value. Students may miscalculate one or both of the differences in the

Students interpret equations relating numbers given on a number line. Students who select B or fail to select A, or who select D or fail to select C, need further practice.
Students match a number line diagram with equations having an unknown. Without an unknown, the diagram represents the equation $52-18=34$. The jump on the number line is 18. Students have seen two ways to calculate differences on the number line. In this situation, they could jump back 38.
The unknown difference is unknown so they will likely label the unknown as x .
The problem is presented on a number line. After identifying the numbers from the number line, students solve one-step equations.
Students label the tick marks on a number line starting at 0 where the tick marks represent tens. This is a version of skip counting by 10 where the students represent the number 100 on the number line.
Students write a number represented by a base-ten block diagram. Students need to group 10 tens into 1 hundred and 10 ones into 1 ten in order to write the number.
Students examine different ways to express a number. They may select B if they do not understand the place value meaning of the digits in a 3-digit number.
Students compare 3-digit numbers, some of which are given in expanded form. Students who select A or D need more practice with the meaning of place value.
Students compare the value of expressions. The expressions involve adding tens or hundreds with no composition of hundreds needed so the focus is on understanding the value of the expressions.
Students list all the three-digit numbers that can be made with the digits 2, 5, and 7 in increasing order. Some students may be prepared to make the list without writing the numbers.
Students draw a shape with specified properties. The two sides that are equal do not need to make the square corner as in the sample image. Students also draw a shape with the same properties.
Students identify a pentagon. The given pentagon is not regular so students will need to rely on the definition of a pentagon rather than recognizing the shape.
Students identify squares partitioned into thirds with one third shaded. The distractors are a square that is divided into 3 unequal parts, with one part shaded, and a square that is divided into 3 equal parts, with one part shaded.
Students partition a circle into 4 equal parts and explain why the whole circle can be viewed as four fourths of the circle. It is not important that the four parts are labeled.
Students draw the hour and minute hands to show a time and read the time on a different clock. They also determine whether these times are a.m. or p.m. based on the context.
Students add numbers within 100 using the context of money. Students may make a mistake with their arithmetic or may forget how many cents are in a nickel.

Students solve a two-step story problem with a context of money. While the previous item uses cents, this item uses dollars. The first step is addition and the

Students add and subtract multiples of 10 and 100 from three-digit numbers. Students may select A if they mistakenly add 30 instead of subt

Students find a sum of 4 two-digit numbers. Adding the tens will show that A is not correct and looking at the ones shows that B is not correct

Students find how much needs to be added to a number to reach 1,000. The problems are scaffolded so that each problem can be used to hel

Students explain why an adding on strategy works to calculate a difference. In this particular case, the adding on method works well because e

Students find sums of three-digit numbers. The first sum can be found adding by place value with no regrouping. The third sum introduces a n

Students find differences of three-digit numbers. The first difference can be found with no regrouping. The second problem requires regrouping

Students explain why a compensation strategy for subtraction works in a situation where subtracting by place value would require decomposi

Students are given a situation where they do not know the number of objects and need to decide whether they can conclude that certain qu

Students select expressions that represent the number of squares in an array and they also decide whether there are an even number or odd

Students divide a rectangle into equal rows and columns with the scaffold of regularly spaced tick marks on the side of the rectangle. Then th

Students identify whether there are an even or an odd number of circles in an image. They can do this in several ways including making pairs,

Students decide whether a number is even or odd. When the number is even, they write it as a sum of equal addends. While students may dr

Students decide if a collection of pattern blocks can be split into two identical groups. It is important for them to analyze each individual shap

Students choose different representations of a number within 1,000. For each representation, expanded form, number line, and word form, c
Students explain why a compensation method for subtraction works. In this case, subtracting by place value would mean decomposing a ten
Students calculate sums and differences within 1,000. They are not required to show their thinking so this item addresses fluency. The first tv
Students find sums and differences within 100. No explanation is required as this item is assessing fluency. Each problem requires composing
Students add and subtract two-digit numbers. They make the two-digit numbers using 4 given digits and then strategically think about how to
Students read a line plot and then complete the line plot based on given information. To complete the line plot they will need to use a lot of t
Students compare numbers within 1,000 using , , and . Some of the numbers are given in expanded form while the others are given as numbe
Students identify numbers that appear on a list when counting from 0 by tens. Students who select B may be thinking of counting by fives. St
Students measure the lengths of two figures and find how much longer one is than the other. Students may incorrectly measure one or both
Students estimate the length of a school hallway, choosing between 3 measurements only one of which is reasonable. They then select one c
Students solve a compare story problem about lengths. They may draw a number line, a base-ten representation, or use equations as in the p
Students locate two numbers on the number line and then find their difference. While students do not need to use the number line to find th
Students solve a two part story problem where both operations are addition. They may draw a tape diagram to keep track of the numbers an
Students perform addition and subtraction within 1,000. Both problems require composing or decomposing hundreds and tens if the operati
Students choose a scale for a scaled bar graph and make the graph. Given the provided raphing space, they have 2 choices for a scale. They c
Students read a scaled bar graph and answer questions about the data. Students may select A (and not select B or C) if they do not read the s
Students write multiplication expressions to represent the number of dots in different images. These include an array and an equal groups image. In each cas
Students solve a problem about an equal groups situation. Students may solve the problem using an expression or equation or they may mak
This item assesses an understanding of equal groups situations. No explanation is required and the numbers are deliberately chosen to foster
Students interpret an array situation with an unknown number of columns as a multiplication equation and then solve the equation. The num
Students find an unknown in a multiplication equation using a way of reasoning that makes sense to them. Fluency with these facts is a yearl
The table shows the number of different coins in a piggy bank. Create a scaled bar graph to represent the data. Consider a scale of 5 or 10.
The bar graph shows the number of different animals at a park. 1. How many squirrels and sparrows are there altogether? Explain or show your reasoning.2.
Jada has 2 bowls. Each bowl has 3 apples. Select all representations of Jada's apples.
1. There are 4 bunches of grapes. Each bunch has 10 grapes. How many grapes are there? Explain or showyour reasoning.2. There are 30 people in some c
Draw an array that represents the expression.3*4 Explain or show your reasoning
There are 3 rows of chairs in the room. Each row has 7 chairs. How many chairs are there?1. Draw an array to represent the situation.2. Write an equation to
Students identify rectangles of a given area. The pictures show all of the individual square units, so counting is a possible strategy as is using r
Students find the area of an irregularly shaped figure on a square grid. This item assesses student understanding of what area means. The sha

Students are given the area of a rectangle. Using the definition of area, they identify possible side lengths of the rectangle. Students may select a given rectangle, tiled by square units, to explain the relationship between multiplication and area and then to reason about a figure composed of rectangles with no grid. Measurements are provided, allowing students to find area using a variety of strategies. Since this item assesses an end-of-year fluency, students may be at different points of fluency this early in the year. It is okay for a student to use square tiles to find the area of this figure. Explain or show your reasoning.
Andre places these squares on the rectangle and says the area of the rectangle is 5x3 square units. Find the area of the rectangle. Explain or show your reasoning.
Select all expressions that represent the area of this rectangle.
Priya and Han are designing a tree fort with a rectangular floor. They want at least 30 square feet of floor. Explain why the area of the rectangle is 5x3 square units.
The figure represents a garden. What is the area of the garden? Explain or show your reasoning.
Find the area of the figure. Explain or show your reasoning.
Students examine statements about the numbers in the addition table. They can look entry by entry at the table and evaluate each statement. Students find sums with no approach suggested. The first sum can be found by adding each place value without regrouping while the second sum requires regrouping. Students perform subtraction within 1,000 and explain their strategy with equations. The numbers for the first problem are chosen so that no regrouping is required. Students find the sums and differences within 1,000 with no reasoning required. This item assesses fluency. The first difference requires only one subtraction. Students round numbers to the nearest ten and hundred. The numbers are not plotted on number lines though students may sketch number lines. Students select equations that represent the solution to a two-step problem. Students may select A if they do not pay attention to the fact that there are 5 students. Students estimate a sum and difference and then calculate both. Different responses for the first question are possible and the reasoning behind them varies. Find the value of each sum. Use an algorithm or strategy of your choice. 1. $375 + 444$. 2. $138 + 283$.
Here is how Han found the value of $684 + 237$. 1. What is the meaning of the two 1's above 684 in Han's calculation? 2. Explain why Han's strategy works. Find the value of each difference. Use an algorithm or strategy of your choice.
Here is how Elena found the value of $731 - 498$. $498 + 2 = 500$. $500 + 200 = 700$. $700 + 30 = 730$. $730 + 1 = 731$. $200 + 30 + 2 + 1 = 233$. Explain why Elena's strategy works. 1. What is 572 rounded to the nearest ten? What about to the nearest hundred? 2. Is there a number that rounds to 300 to the nearest hundred? 3. What is the smallest number that rounds to 280 to the nearest ten? Explain or show your reasoning.
Elena has 372 pennies in her piggy bank. Jada has 119 pennies in her piggy bank. Elena says that if they put their pennies together, they would have 500 pennies. Explain why Elena is wrong.
There are 4 tables in the cafeteria with 9 students eating lunch at each table. There are also 177 students waiting in line for lunch at the cafeteria. Explain why the diagram represents the situation.
Andre has 104 collecting cards. He gets 3 more sets of 8 cards. 1. Explain why the diagram represents the situation.
Students are building toward fluency with multiplication and division facts by the end of the year. This item gives students an opportunity to demonstrate fluency with multiplication and division facts. Students match a division equation with situations. While students can do the matching by solving each problem and trying to check if it has the same answer, this item is designed to assess fluency. Students match a situation with multiplication and division equations. While students can do the matching by solving the problem and trying to check if it has the same answer, this item is designed to assess fluency.

Students solve a division problem. No solution method is specified so students might draw a picture or they might use what they know about
This item gives students an opportunity to show fluency with division within 100. Except for the first problem which students may “just know
Students evaluate multiplication expressions. For the first and third problems they may use the distributive property. For the second problem
Students find multiple solutions to a two-step problem using subtraction and division. If students subtract incorrectly this may influence their
Noah has 36 books. There are 4 shelves on his bookshelf. He puts the same number of books on each shelf. 1. Write a division expression to r
There are 35 flowers in the garden. There are 7 flowers in each row. 1. Make a drawing to represent the situation.
A. $3 \times 12 = ?$
Han knows $4 \times 5 = 20$ and $4 \times 3 = 12$. Mark or shade the diagram to show how Han can use these facts to find
Find the value of each product.
Find the value of 7×60 . Explain or show your reasoning.
Explain how each diagram represents 4×13 . Use one of the diagrams to find the value of 4×13 .
Andre began reading a book that has 192 pages. If he reads 15 pages for each of the next 5 days, how many pages will he still have to read to
1. $60 \div 4$
Noah has 117 building blocks. He builds a shape with 25 blocks. Then, he puts the rest of the blocks in 4 bins, with the same number of blocks in each bin. H
Students shade a fraction of a rectangle. They can divide the rectangle into 8 equal parts in several different ways. The most likely choices are
Students locate numbers on the number line. First they locate and label 1 on a number line where a single unit fraction has been labeled. The
Students identify equivalent ways of expressing a fraction. Students may select A if they see that the rectangle is divided into 6 equal pieces b
Students identify a fraction that is equivalent to a whole number expressed as a fraction. While they are not directly asked to write $9/3$ as a w
Students write two fractions that are equivalent to $1/2$. No representation is suggested so students may draw a diagram to solve the problem
Students examine a false claim about writing a whole number as a fraction. To write 2 as a whole number, they can explain that each whole is
Students decide if fraction comparison statements are correct. Students who do not select A, B, or E have likely either misread the numbers c
Students locate different numbers on a number line. In order to find $1/2$ given the location of $1/4$ they need to recall that $1/2$ is equivalent to
Select all diagrams where $3/4$ of the whole rectangle or circle is shaded.
Shade $5/6$ of the rectangle.
What fraction is marked on the number line?
Locate and label $2/3$ and $5/3$ on the number line:
Locate and label the number 1 on the number line. Explain or show your reasoning.
Select all the true equations.
Find a fraction that is equivalent to $4/6$. Use the number lines if they are helpful
1. Circle the fraction that is equal to a whole number: $1/4$ $3/4$ $11/4$ $12/4$
Use , , or to make each statement true. 1. $1/3$ ----- $1/2$
Elena ate $1/3$ of a loaf of bread while Clare ate $1/4$ of the same loaf of bread. Clare says that she ate more of

Students measure the length of a rectangle with a ruler marked in quarter inches. Students may select response A if they see that the rectangle is 1/4 inch long.
Students choose objects that weigh about 1 kilogram. The distractors are not close to 1 kilogram so if students select A, D, or E, they probably chose objects that weigh about 100 grams.
Students read the time from a clock and then solve an addition problem which goes to the next hour. Students who select responses B and E did not read the question carefully.
Students create a line plot for measurements given in fractions. The fractions are not labeled on the line plot so students will need to identify the fractions.
Students read the volume of liquid in two different containers and then compare them. In both images, every tick mark represents 1 liter. Students who select A and B did not read the question carefully.
Students subtract within 1,000 to answer a question about weights. Students may add 835 and 143 if they do not read the question carefully.
Students use multiplication and division to solve problems about liquid volume. Students may make drawings, write expressions or equations, or reason with numbers.
How long is the pencil?
Here are some pencil lengths in inches. Use the measurements to complete the line plot. $3\frac{2}{4}$ $2\frac{1}{2}$ $2\frac{3}{4}$ $4\frac{1}{4}$ $3\frac{1}{2}$ $3\frac{1}{4}$
Which fruit weighs about 1 kilogram? A. one blueberry B. one pineapple C. one grape D. one raspberry
Select 2 items that weigh about 1 gram. A. a piece of gum B. a notebook C. a door key D. a pen cap E. a toothbrush
Select all the containers that show $3\frac{1}{2}$ liters of water.
Show 11:49 a.m. on the clock.
Tyler is in line for a roller coaster. He entered the line at 9:35 a.m. and got on the roller coaster at 10:19 a.m.
Select the situation that the diagram represents. A. There are 2 bottles of water. Each bottle has 7 liters of water. How many liters of water are there in total?
A farmer picked 96 kilograms of apples one day. He put the apples in 8 boxes and the boxes all had the same weight. How many kilograms of apples did each box have?
Students identify common and distinguishing properties of two quadrilaterals belonging to different categories. For common characteristics they select A.
Students decide if a shape on a grid is a rhombus, rectangle, or square. Students who do not select A may have tried unsuccessfully to measure the side lengths.
Students find the perimeter of a rectangle. Only two side lengths have been labeled, and the rectangle does not lie on a grid, so students will need to use the properties of rectangles.
Students find the perimeter of a polygon with all side lengths provided. Other items assess student understanding of perimeter so the main focus is on perimeter.
Students use the properties of quadrilaterals to decide if they have enough information to determine the perimeter or area of a shape. Students who select A did not read the question carefully.
Students find rectangles with the same area and different perimeter. They can find the rectangles by experimenting or by using the fact that they can write 12 as a product of two numbers.
Students find rectangles with a specified perimeter and different areas in context. They calculate the area of the rectangles and then choose the one with the largest area.
Draw a quadrilateral that is not a rectangle. Explain why your shape is not a rectangle.
Select all the rhombuses.
Find the perimeter of the shape.
All sides of the hexagon have the same length. What is the perimeter of the hexagon? Explain or show your work.
Tyler's rectangular room has a total perimeter of 54 feet. The length of Tyler's room is 13 feet. What is the width of the room? Explain or show your work.
A town is building a rectangular playground with fencing all around it. The area of the playground is 99 square feet. What is the perimeter of the playground?
1. Draw a rectangle that has the same perimeter as rectangle N but has a different area. Label it P. What is the area of rectangle P?
A rectangular garden has an area of 21 square yards. What could be the side lengths of the garden? Explain or show your reasoning.
Lin drew a rectangle with a perimeter of 34 centimeters. The width of the rectangle is 6 cm. 1. What is the length of the rectangle? 2. What is the area of the rectangle?

Students identify different expressions for the area of a rectangle, including both multiplication expressions and an addition expression. Students locate different fractions on the number line. For the first problem, they need to understand how to make fourths on the number line.
Students explain why an even number multiplied by 5 is a number whose last digit is 0. They may draw a picture to show that each pair of 5's
Students compare fractions using $<$, $>$, and $=$. The comparisons include pairs of fractions with the same numerators, the same denominators,
Students find products and quotients within 100. No explanation is requested so students may use a variety of techniques. For multiplication
Students find multiple pairs of numbers they can multiply to get a given number within 100. They may use an area model, especially for small
Students choose plants for a garden. They first answer some specific questions that give them familiarity with the context and then design the
Students make sums and differences out of digits which they find using a spinner. This game is intended to be played multiple times as the di
Students represent two situations with division equations. The situations are different but are represented by the same equation. Students then describe how
Students find the area of a composite rectangular shape. They may divide the shape into rectangles in different ways. If they cut the shape in
Students calculate a time from a context and then identify the time on a clock. Students may select A if they subtract 95 minutes from 2:45 in
Students write an equation to represent an equal groups situation. It is an unknown factor problem which they may represent with either mu
Students describe situations that are represented by a multiplication equation and a division equation each with an unknown. Students may r
Students write a multiplication and a division equation using a ? for the unknown to represent an equal groups situation. They may solve using any method. S
Students solve a two-step arithmetic problem within 1,000. They find a product within 100 and then perform subtraction within 1,000 to solve the problem. The
Students choose different representations of a point on a number line. Only 0 and 1 are labeled on the number line and there are tick marks .
Students identify diagrams that show . Students who select A probably do not notice that the 3 parts making the rectangle are not equal-size
Students determine whether a number is prime or composite. The number 27 has 1, 3, 9, and 27 as factors $3 \times 9 = 27$ and should be a known f
This item assesses student understanding of the words factor and multiple. They may select B, and notselect A, C, and E, if they confuse the m
Students find all factor pairs of a number within 100. The calculations on this item are more challengingthan the previous items. If students o
Students examine multiples of different numbers. The first two questions give them some experience
Students identify which fractions are equivalent to $\frac{3}{12}$. They may fail to select A if they make an arithmetic error. They may fail to select B if
Students compare fractions to the benchmarks $\frac{1}{2}$ and 1. Students may select response C and not select the correct responses A and D if the
Students identify a fraction that is less than $\frac{3}{5}$. Students can reason that choices A and B are greater than $\frac{3}{5}$. by finding a common denomi
Students find fractions equivalent to a given fraction with no scaffold. They may draw a picture or use a number line or reason abstractly in ter
Students address a common misconception about fractions, namely, reasoning that focuses on the numerator without taking into account the

Students list fractions in terms of increasing size. No method is suggested, but the denominators are large enough that finding a common denominator is challenging.

Students generate equivalent fractions given a fraction and the denominator of the equivalent fraction they want.

Students compare fractions in context. The first comparisons are with the benchmark fraction $\frac{1}{2}$ and

Students identify expressions that are equivalent to $\frac{5}{4}$. Students who fail to select A do not understand how to decompose a fraction into unit fractions. Failure to select B and C indicates a lack of understanding of equivalent fractions.

Students compare the value of expressions with 1. The expressions involve sums of fractions with the same denominator or products of a whole number and a fraction.

Students identify products of whole numbers and fractions that are equivalent to a given fraction. They need to understand that the numerator of the product is the product of the numerators and the denominator is the product of the denominators.

Students solve a contextual problem which requires multiplying a whole number and a fraction. Watch for tape diagrams and number line representations.

Students interpret the measurement data on the line plot to answer questions and use the data to subtract fractions. For the first question, students may need to find a common denominator.

Students find sums, differences, and products of fractions without context. The numbers (for sums and differences) are presented both as fractions and as decimals.

Students add fractions with denominators 10 and 100. They may use the commutative and associative properties of addition in order to make the addition easier.

Students find sums and differences of fractions with denominator 6 in context. In some cases the answer is a mixed number.

Students identify how to represent a number using words or expanded form. Students who select B, C, or D either have not looked carefully at the number or do not understand how to write numbers in expanded form.

Students compare numbers within 1,000,000. Students who answer the last problem incorrectly may have been careless as the digits are the same but they are shifted to the left by one place and the value is ten times as great.

Students multiply a whole number by 10 in context and explain why the digits are the same but they are shifted to the left by one place and the value is ten times as great.

Students find expressions equivalent to a given fraction with a denominator of 100. Some of the expressions are given as decimals so students need to understand the relationship between fractions and decimals.

Students find a sum and a difference without a context. The problems are arranged in a way that encourages the use of the standard algorithm.

Students find a decimal between two decimal numbers using time as a context. Since the two times given are in tenths of a second, 6.8 and 6

Students round a number to different place values without the support of a number line. Students may draw a number line to help visualize t

Students compare and subtract whole numbers within one million. They can use any method to perform the subtraction. To find the differen

Students solve a multiplicative comparison problem. They may write an equation or draw a diagram to help support their thinking. If student:

Students choose correct conversion statements for metric and standard units. Students who select A or D have the conversion factor backwa

Students choose a correct conversion statement between inches and feet. Each distractor uses the correct conversion factor but the wrong o

Students reason about the perimeter and side lengths of different rectangles. Students may choose E if they forget that a rectangle has two s

Students complete a table converting pounds to ounces. Because they need to multiply by 16, the numbers being converted have been kept i

Students examine an incorrect unit conversion. Rather than multiplying by 100 to find the number of centimeters in 2,500 meters, Noah divid

Students compare two quantities given in different metric units, deciding which is larger and then calculating the difference. The numbers in th

Students evaluate statements about the sequence of multiples of 3. Students who select C are probably just looking at the given numbers an

Students estimate the value of the product of a four-digit number and a one-digit number. While they may calculate the product and find the

This item complements the previous one, addressing the operation of division. Once again, students can perform the division and then choos

Students find products of a one-digit and four-digit number and two two-digit numbers. Students may draw a diagram to show partial products.
Students find quotients of three- and four-digit numbers by a one-digit divisor. They may use diagrams or vertical calculations, or they may use the standard algorithm.
Students perform multiplication and division to solve problems about the same context. They can use any method to calculate. It is important to understand the relationship between multiplication and division.
Students use division to solve a problem where they need to interpret the remainder. In this situation, the quotient shows how many full bags of popcorn can be made.
Students solve a multi-step problem about tiling a rectangle with squares of different sizes. They will need to convert from feet to inches and use area formulas.

Students identify two segments in a drawing and analyze the angles made by the lines containing those segments. The lines are not parallel but intersect.
Students evaluate claims about the angles that make right angles and full circles. Students who do not select A or C may understand that the angles are not complementary.
Students identify different types of angles in a diagram. They can visually identify that angle B is acute and angle C is obtuse. They can calculate the measure of angle A.
Students find the measure of an angle using an image of a protractor. Students who select C or D are likely using the protractor to identify the angle.
Students find the measure of an angle using the facts that there are 360 degrees in a full circle and that angle measure is additive. Students may use the fact that a straight line is 180 degrees.
Students construct two angles of given measures and then use these angles to define a third angle and find its measure. For the third part, they may use the fact that the sum of angles in a triangle is 180 degrees.
Students find the measure of angles made by clock hands. For the first problem, they will likely recognize that the hands make a right angle. For the second problem, they will likely recognize that the hands make a straight line.

Students identify right triangles. Students may select A or E if they see the right angles but do not identify that the shapes are quadrilaterals. They may fail to select B or C if they do not see the right angles.
This item examines right triangles from the point of view of symmetry. Students may select A if they draw a few right triangles but do not consider the situation where the right angle is not at the top or bottom.

Students use the properties of rhombuses, squares, and rectangles to decide if given shapes belong to these categories. Side lengths which appear to be equal are given. Students evaluate statements about quadrilaterals. The statements are about the focal points of the standard 4.G.A.2, angles of different measure and parallel lines. Students identify all lines of symmetry for different quadrilaterals including a rectangle, a parallelogram, and a rhombus. Both the rectangle and the parallelogram are given. Students construct different quadrilaterals with a fixed perimeter. They may draw and label diagrams or supply reasoning with words and expressions.

Students use their understanding of place value to compare the value of the same digit in different places in a number. Students may select E or F. Students plot decimals and decimal fractions on the number line. Other than $7/10$, it is not important that the numbers be plotted exactly though they should be close. Students subtract mixed numbers which they read from a line plot. The line plot is a convenient way of presenting the information and also a way to assess student understanding of place value.

Students identify sums of fractions that are equal to a given fraction. Students who select B may be applying the wrong operation, multiplication. Students find a whole number multiple of a fraction and a difference of a whole number and a fraction in context. While students can draw a rectangle to help, it is not required. Students add and subtract fractions with no explanation required. Students have evaluated expressions like these in the process of solving other items.

This item assesses student ability to perform addition and subtraction within 1,000,000 using the standard algorithm. The numbers are not so large as to be intimidating. Students continue to perform addition and subtraction with multi-digit numbers. These numbers are chosen to encourage alternative methods of calculation.

Students solve a word problem about liquid volume using fractions. They will need to multiply mixed numbers by whole numbers and then find the difference. Students solve problems about the distance from the earth to the moon. The orbit of the moon is not a circle and so the distance varies over time. Students locate a number on two number lines where the outer tick marks are labeled. Understanding of place value plays a key role in this item.

Students identify numbers in expanded form and compare numbers using $<$ and $>$. Students who do not select $<$ for the first problem have probably not understood the concept. Students round a number to the nearest ten-thousand, thousand, and hundred. No method is suggested so students may use their understanding of place value. Students solve a multiplicative comparison problem that requires multiplying a four-digit number by a one-digit number. Students may draw a diagram to help.

Students solve a two-step story problem which requires multiplying 2 two-digit numbers and then adding a number to the product. Students divide a four-digit number by a one-digit number to solve a word problem. They may use partial products or draw a diagram or they may use long division. Students identify fractions equivalent to a given fraction. Because the given fraction has a denominator of 5, this also gives students an opportunity to use their understanding of place value.

Students compare fractions and decimal numbers. For item A, they can make the comparison using the benchmark fraction $1/2$ which is also 0.5 . Students identify different ways to find the volume of a rectangular prism, including: multiplying length, width, and height decomposing into layers. Students find the volume of a figure. No strategy is suggested but students will likely cut the figure into two rectangular prisms and add the volumes. Students select different ways to fill a rectangular prism with centimeter cubes. The 3 correct options represent the different ways of decomposing the figure.

Students find the volume of rectangular prisms given their side lengths. For the first prism they are given the length, width, and height and for the second they are given the length, width, and height of one of the faces. Students find the volume of a figure composed of two rectangular prisms. Since one of the side lengths is 1 foot, the calculations are not difficult.

Students see a rectangular prism that is partly filled with unit cubes, without gaps or overlaps, where the cubes do not, and cannot, fill the container.
Students design a composite prism to meet certain criteria. The context is a tiered garden. While slightly different from the garden context the problem is similar.
Which figure has greater volume? Explain your reasoning.
Find the volume of each prism. Explain or show your reasoning.
Explain or show how the expression 4×6 represents the volume of the rectangular prism in cubic units.
Find the volume of the rectangular prism. Explain or show your reasoning.
Explain or show how the expression 4×18 represents the volume of the rectangular prism in cubic units.
A box is shaped like a rectangular prism. Its measurements are 6 cm by 2 cm by 15 cm. Select all that apply.
Find the volume of each figure. Explain or show your reasoning.
A jewelry box is shaped like a rectangular prism. The base of the box has an area of 200 square centimeters and its height is 6 centimeters. What is the volume of the box?
Students find the area of a rectangle with one side of integer length and the other side of fractional length. The numbers are small enough in order to draw a diagram.
Students identify expressions that represent a shaded area with one fractional side length and one whole number side length. Answers C and D.
Students solve a problem involving a product of a whole number and a fraction. Students may select A if they correctly find $\frac{1}{3}$ of 8 ounces as $\frac{8}{3}$ ounces.
Students represent the result of division of two whole numbers in multiple ways: a fraction, a mixed number, and a division expression. Students may select A if they correctly find $10 \div 4 = 2\frac{2}{4}$.
Students multiply a whole number by a fraction to solve a story problem. No representation for the problem is requested so students may draw a diagram.
Students multiply a whole number by a fraction with no context. Some of the fractions are listed as mixed numbers and some are listed as fractions.
Students solve a problem about area. There are different ways students might draw a diagram. They might divide one side of the rectangular farm into 5 equal parts.
Five friends equally share 3 liters of water. How many liters of water does each person get? Explain or show your reasoning.
Write a division equation that matches the diagram.
Explain why $10 \div 4 = 2\frac{2}{4}$.
1. Explain how the diagram shows $3 \div 5$. 2. Explain how the diagram shows $3 \times \frac{1}{5}$. 3. What is the value of $3 \div 5$? Explain or show your reasoning.
Explain or show how each expression represents the shaded parts of the diagram. 1. $2 \times (4 \div 3)$ 2. $4 \times \frac{2}{3}$ 3. $4 \times 2 \times \frac{1}{3}$
For each diagram, write an expression for the area of the shaded region. Then, find the area.
A bottle holds 2 liters of water. Clare drank $\frac{3}{5}$ of the bottle of water. How many liters of water is that? Explain or show your reasoning.
Students examine an area diagram showing a product of two non-unit fractions. Each true statement is essential to an understanding of the area of the shaded region.
Students identify expressions representing a tape diagram using both multiplication and division. Students may select A if they see the 5 equal parts.
Students match quotients of a whole number and a unit fraction with their values. All of the expressions use the same digits so that students can check their work.
Students divide a whole number by a unit fraction in a "how many in one group" situation. To solve the problem, students may write an expression, $440 \div \frac{1}{4}$.
Students find products of non-unit fractions and mixed numbers with no context. Students may make a drawing such as an area diagram, but no diagram is provided.
This item complements the assessment problem about the distance around the track whose solution involved finding the value of a whole number.
Students find the product of non-unit fractions within a context. Students may use a drawing such as an area diagram as shown in the sample response.
Students solve a multi-step problem involving area. They need to first find the area of each square tile, most likely either by fraction multiplication or by dividing the side length by the number of tiles.

Write a multiplication expression that represents the area of the shaded region. Explain or show your reasoning.
Find the value of each expression. Draw a diagram if needed $1/4 \times 1/5$ $2/3 \times 3/4$ $3.5/4 \times 5/6$
A rectangular garden is $2 \frac{1}{2}$ meters wide and $4 \frac{1}{2}$ meters long. What is the area of the garden? Explain or
1. Write a division expression that represents the shaded piece of the diagram.
Find the value of each expression. Draw a diagram if it helps. 1. $1/3 \div 5$ 2. $1/6 \div 4$ 3. $1/8 \div 3$
There are 12 books on the top shelf of a bookshelf. That is $1/6$ of the total number of books on the bookshelf.
Three friends equally share $1/2$ kg of cherries. 1. Write a division expression that represents this situation. 2. Write a multiplication expression that represents t
The trail is $3 \frac{1}{4}$ miles long. Mai walked $1/3$ of the trail. How many miles did Mai walk? Explain or show your
Students multiply a 3-digit number and a 2-digit number using a method of their choice. The numbers are arranged for the standard algorithm
Students select equations that represent different ways of expressing the value of a product. Since multiplication is commutative, the order o
Students estimate the value of a quotient. Because the answers differ by powers of 10, students can answer the question by noticing that 8,7
Students find a quotient of a four-digit number by a two-digit number using a method of their choice. Many options are available, including: a
Use the standard algorithm to find the value of each product. Explain or show your reasoning. 1. 628×25 2. 359×63
1. Lin says the value of 257×63 is about 1,500. Do you agree with Lin? Explain or show your reasoning. 2. Use the standard algorithm to find th
Find the value of $966 \div 23$. Explain or show your reasoning.
A toolbox is shaped like a rectangular prism. The length is 14 inches and the height is 7 inches. If the volume
Kansas and South Dakota both have rectangular shapes. Kansas is 660 km long and 343 km wide. South
The back of a garbage truck is 23 feet long, 8 feet wide, and 12 feet tall. How many loads of trash from the
Students compare decimal numbers. Students may select B if they see the 9s and think this means the quantity 0.99 must be greater than 1. !
Students identify different ways to write a decimal number, including expanded form and word form. Students who select both A and D may
Students round a decimal number to the nearest hundredth, tenth, and one. They may draw number lines to help reason but number lines ar
Students add and subtract decimal numbers to the hundredth. The numbers are too complex for drawings to be a helpful strategy and the ex
Students use their understanding of place value to identify the value of digits in different numbers. Students who select A have likely noticed
Students find sums, differences, and products of decimals. No explanation is requested as students have many opportunities to explain their
Students find products and quotients involving decimal numbers. They may draw pictures, using the provided hundredths grids for example, i
Students apply all 4 operations to complex decimal numbers. In each case, understanding of place value and operations will be important in order to calculate
Select all representations of 0.631. B. Six hundred thirty-one hundredths. C. $(3 \times 0.1) + (6 \times 0.01) + (1 \times 0.001)$ D. $631/1000$ E. Six hundred thirty-on
Order the following decimals from least to greatest. 0.439 0.394 0.441 0.531 0.342
Priya ran 1.9 miles on Saturday, and 2.34 miles on Sunday. How many miles did she run altogether?

Find the value of each expression. Explain or show your reasoning. 1. $12.1 + 5.77$ 2. $1 - 0.15$ 3. $38.12 - 27.3$
Find the value of the expression 0.3×0.5 . Explain or show your reasoning. Use the grid if it is helpful.
Andre's strategy works and use it to find the value of 0.28×37 .
Find the value of the expression 2.1×7.3 . Explain or show your reasoning.
Find the value of $1 \div 0.05$. Use the diagram if it is helpful.
1. Explain how the diagram shows $0.72 \div 6$. 2. Find the value of $0.72 \div 6$.
Which expression has the same value as ? A. $840 \div 0.01$ B. $840 \div 10$ C. $8400 \div 1$ D. $8.4 \div 0.01$
Students find how many millimeters are in a kilometer and express it both as a number and using exponential notation. Students may select /
Students choose a fraction equivalent to $7/10$. Response A is not correct because $7/10$ has been multiplied by a fraction different than 1 and
Students compare the value of addition and subtraction expressions with fractions and mixed numbers to the benchmark 1. In each case, the
Students find sums and differences of fractions. Though no explanation is requested, students will likely find a common denominator in order
Students compare numbers which are given as fractional multiples of the same number. Since they are not given the weight of Lin's backpack
Students solve a problem that requires expressing a volume given in a smaller unit in terms of a larger unit. In doing so, they will demonstrate
Students read a line plot of weights given in ounces. Only the whole numbers are labeled so students will need to determine that the weights
Students solve a story problem about distances and reason about how to represent these distances on a diagram resembling a number line. 1
Complete the table with equivalent measurements.
Choose all representations of the number 100,000,000. A. 10^8 B. 10 million C. $10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10$ D. 100 thousand E. 100 million
It is 325 meters around a track. Jada ran around the track 12 times. How many kilometers did Jada run?
Elena ran $2 \frac{7}{10}$ miles. Diego ran $2 \frac{3}{4}$ miles. How much farther did Diego run than Elena? Explain or show your
Find the value of each expression: 1. $211/12 - 1/38$ 2. $3/4 + 2/9$
The line plot shows the amount of blueberries Lin picked on different days during harvesting season. 1. What is the difference between the gr
Write < , = , or > in the blanks to make each statement true. 1. $9/7 \times 187$ ---- 187 2. $19/19 \times 11/3$ --- $11/13$ 3. $19/19 \times 11/13$ --- $19/19$
What could be the value of the number labeled ? A. $2/3 \times 19/17$ B. $19/17 \times 7/7$ C. $13/13 \times 19/17$ D. $3/2 \times 19/17$
Students analyze statements about the coordinates of points on the coordinate grid. Students may confuse the horizontal and vertical coordi
Students describe quadrilaterals in the coordinate plane. They use the fact that the gridlines are perpendicular in order to explain why a quac
Students show understanding of the taxonomy of quadrilaterals by relating different types of quadrilaterals. Students who do not perform w
Students decide if a quadrilateral belongs to different categories based on properties of the quadrilateral. All four sides being equal is the defi
Students classify a quadrilateral given on a coordinate grid. They will need to understand the defining properties of parallelograms, rhombuse
Students explain the meaning of the coordinates of two points in terms of the distance from the axes. Of particular interest is the origin which
Students generate patterns, given two rules, and identify relationships between corresponding terms in the two patterns. Students may selec

Students interpret the meaning of points in the coordinate plane in context and plot a point demonstrating understanding of the coordinate
1. Write the coordinates for each point on the grid.2. Locate the point (3,0) on the grid and label it D.3. Locate the point (0,5) on the grid and
For each set of points, decide if they lie on a vertical line, a horizontal line, or neither. Use the grid if it is helpful. 1. (1,5), (2,5), (3,5)2. (1,1), (2,
What type of quadrilateral is ABCD ? Select all that apply. A. parallelogramB. rhombusC. rectangleD. trapezoidE. square
1. Which of the triangles are right triangles? 2. Which of the triangles are isosceles triangles?
1. A parallelogram is _____ a rectangle.
Lin and Priya create patterns with these rules. Lin's rule is start with 0 and keep adding 2. Priya's rule is start
Here is some data for the height and age of children in Clare's neighborhood.1. Clare's brother is 5 years old and has a height of 49 inches. Label the point th
Students select expressions that represent the volume of a rectangular prism. Students may select B if they are only counting the cubes that a
Students find the product of a fraction and a mixed number in an area context. They are given a diagram which they may use to represent the
Students interpret a point on the number line and locate two other numbers, neither of which lies on a tick mark. Students will need to first i
Students multiply and divide whole numbers and decimals by powers of ten. As they find the value of each expression they relate the value o
The goal of this game is to provide practice applying the four operations to whole numbers. This is a variant of the game 24 where the goal is
Students find products of a two-digit and three-digit number using a strategy that makes sense to them. Some of the problems call for the sta
Students plot and interpret points in the coordinate plane representing sets of coins. Three different aspects of the coins are consideredtheir
Students try to make 1 out of fractions that they get from a spinner. The goal here is to develop fluency with addition, subtraction, and multipl
Students multiply decimal and whole numbers to find a volume. They also perform two unit conversions, each of which requires either multipl
Students find the volume of a composite rectangular prism. They may divide it as in the solution or they may divide it into a 12 by 15 by 36 pr
Students compare the value of sums and differences of fractions with $\frac{1}{2}$. In each case, there is a way to make the comparison without calcul
This item complements the previous item. In this case, students compare expressions with 1 rather than with $\frac{1}{2}$ and the expressions all invc
Students answer two questions about amounts of water. One is represented by the expression $5 \div \frac{1}{8}$ Students may not think of it this way and may also solve
Students compare two fractions in context where one of the denominators divides the other. Then they find the sum and difference of those
Students identify different expressions that have the value one million. They may select A if they confuse thousands and millions. They may s
Students find two quotients, both are a 4-digit number divided by a 2-digit number. The first problem has simpler numbers and can be found
Students perform all 4 operations with decimal numbers. The addition and subtraction problems require students to identify that 2.4 can also be thought of as
Find the value of each expression. $\frac{1}{5} \times 10$ 2.5 $\frac{2}{3} \times 4$ 3. $\frac{13}{4} \times 5$
Students count groups of images and match them with written numbers. Students may be able to accurately count the groups of images
Students count a group of dots in a circle and write a number to show how many dots there are. Students may be able to accurately count th
Students compare groups of images. In both cases, the number of images differs by 2 making the comparison more accessible. If students ans
Students compare two written numbers, complementing the previous item where they compare collections of objects. Students who answer
Students use their knowledge of the count sequence to write the missing numbers. As with other problems on the assessment, students may

Students identify rectangles. Students may not select shape B because it is a long and skinny rectangle or because it is rotated. They may

Students interpret the positional words above and below and the names of the shapes as they refer to pattern blocks. Students may write ye

Students understand the words longer and shorter and can accurately compare lengths. If students answer both problems incorrectly, they p

Students identify triangles and rectangles in an image. It is not essential for the student to identify every rectangle or triangle. Students may

Students compare sets of pattern blocks and decide, in one case, which group has more things and, in the other case, which group has fewer

Students write expressions to represent several familiar representations they have seen during the year. Students might just write a number

This is a game for two students that gives the teacher an opportunity to observe them working on facts within 5. Students try to make the

Students build and describe a shape. They can choose a two-dimensional shape which they will build using pattern blocks or a three dimensio

Students give clues to their partner to help them guess a number. The numbers are 1 through 20 and the game gives both partners a chance

Students identify which single-digit number is greater or less. Other items will assess students' ability to write numbers that represent quanti

Students find the number that makes 10 with a given number. They should have access to a 10-frame for this problem.

Students count objects in a line, in a circle, and arranged in a 10-frame. They write a number to show the result of their count. Students may

Students evaluate and write expressions for teen numbers. For the decomposition questions, students are likely to write the numbers as 10 a

Students solve a Take Away, Result Unknown story problem. They may draw a picture as in the provided solution or they may write an equati

Students solve a Put Together/Take Apart, Both Addends Unknown story problem in one way. They may draw a picture, or write an equation,

Students solve an Add To, Result Unknown and a Take From, Result Unknown story problem with the same context. In the first problem they



lines on the page to facilitate counting. Students also find the total number of pattern blocks. They can do this by

represent a method that students have seen and used to add two-digit numbers. For example, $26+10+7$ shows

case of the distributive property. They view the rectangle as a collection of equal rows, and the area

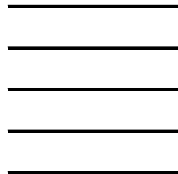
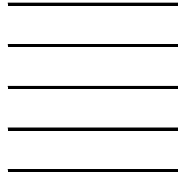
techniques that students may use to find the area: find the area of the 9 foot by 9 foot square and subtract

it this way. This method will take time but will work with patience. For the problems about even and

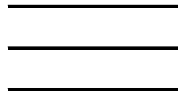
no decomposition is required to perform the operation. The numbers for the second problem require

finding the agreement or disagreement with the estimate is the important part of this question. The estimate

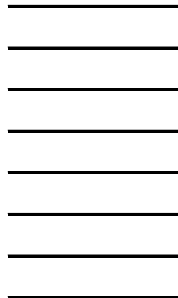
accuracy for multiplication facts within 100. If a student incorrectly answers several questions in this item then they may
the same solution as the given equation, this is likely to be time consuming and responses B and D go
to solve each equation, this is likely to be more time consuming than interpreting the equations in terms



there altogether? B. Han put 14 liters of water in 7 bottles. He put the same amount in each bottle. I



ocus of this item is on adding the side lengths efficiently and the chosen numbers are friendly for ad
ents who do not select A, C, or E have either made an arithmetic error or do not understand the



ne, with 0 and 1 given, and then label them correctly. In particular, they need to understand that 1 is

ler numbers. Grids should be made available for these students. They may think of the problems in their own garden. There are many choices students may make for their gardens but the restrictions means that students spin each time will influence their strategy. The game gives an opportunity for the

they try to relate $2/8$ and $3/12$ directly, not thinking that they are both equivalent to $1/4$. They may

ole number and a fraction. Students may select A if they identify the expression as equivalent to 1 ar
tor gives the number of parts and multiplying by a whole number increases the number of parts by tl

A small rectangular box divided into three horizontal sections, likely for labeling or marking.

the numbers but they will need to label those number lines carefully in order for them to be helpful.
ce between the two school districts, the standard algorithm is a likely choice. To find how many mor

A vertical rectangular box divided into 18 horizontal sections, likely for a list or data entry.

bags of soil are needed for a project and the remainder means that part of another bag is needed. Students

know that the measure of a full circle is 360 degrees and the measure of a right angle is 90 degrees but have not concluded that angle A is a right angle since it makes a 180 degree angle along with the angles labeled as 30

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For the second problem, they need to use the additivity of angles and the fact that the hours on the clock

select B because the right angle is not oriented in the horizontal and vertical direction. Students who select C have

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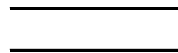
ual are equal and angles which appear to be right angles are right angles. Students can make these assumption

number line to help visualize the problem, the numbers are large enough to make this an inconvenier

the year. The usual “distance” listed in resources is almost halfway between the greatest and least dist
them as the tick marks on the first number line increase by thousands and on the second number line
probably not paid sufficiently close attention to the place value of each digit. Students who do not sele

rtunity to identify decimal fractions though they are not asked here to write them as decimals. Stude
1.50. Students may select B if they see the 8 in the decimal but fail to identify the 0 before the 8. Stud
ayers that are one cube thick and multiplying the number of cubes in one layer by the number of laye

container exactly. Students identify that in this situation they cannot calculate the volume exactly, but that they worked on in the lesson, students have the scaffold of an image which indicates the overall s

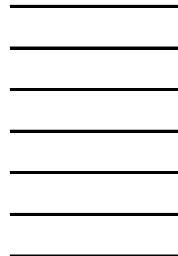


this item that students can count that there are 8 shaded parts so the main work here is identifying E are the essential ones for students to see to test their understanding of the standard 5.NF.B.4.b. A and do not multiply by 2. Students may select C if they subtract $\frac{2}{3}$ from 8 rather than finding the products who select A or B (and fail to select C or D) need more practice interpreting division situations and



pieces, using the relationship between division and fractions. They could also shade $\frac{1}{5}$ of each square kilomet

area model for finding a product of fractions. A explains why the denominator of a product of unit fra



tion or by drawing a diagram. Then they analyze a common misconception, namely that when the sic

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of the factors can be reversed. Each multiplication equation is also equivalent to two division equations.

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Students may select E if they do not understand place value or think zeros to the right of a decimal are not needed.

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reasoning in other items. The goal of this item is to assess fluency. If students struggle with some of the items, they may not be able to solve them efficiently.

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For the first problem, a good strategy is compensation. The subtraction problem can be done subtracting from the larger number.

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response B has the numerator and denominator of $7/10$ switched. If students select A or B then there is a way to make the comparison by reasoning about the size of the numbers without finding a common denominator.

They first analyze an incorrect representation, allowing them to think about the given quantities before

making a selection. If they do so consistently, then they will select the distractors B and E and will not select any other options.

are shown in the image but which do not entirely fill the prism. Students may select C if they confuse

always to make 24 using 4 given numbers and the operations of addition, subtraction, multiplication or standard algorithm as there is no additional structure that would help make the calculation more efficient. The value of the number of coins is the weight of the coins. Students worked with this context in an earlier unit on multiplication of fractions with different denominators. The longer students play the game they will start to multiply or divide by a power of 10, giving students an opportunity to use what they have learned about fractions and a 12 by 15 by 27 prism. They could also cut off the 15 by 15 by 12 overlapping piece and find the volume. Calculating but students may also find the value of an expression and then compare directly $\frac{1}{2}$. Students may solve multiplication or division. Students can approach the division expressions using their understand

and readily by adding up multiples of 21, for example, and using the relationship between multiplication and division. For example, 2.40 , that is as 2 and 40 hundredths. Then they can add or subtract the 2 hundredths from the 40. The multiplic

s the second and sixth statements instead of the first and fifth. This means that they have switched t
robably have switched the meaning of longer and shorter and need more practice hearing these wor

to develop arithmetic skills. For example, for the number 8 a student might say: I'm one full hand and

, or they may explain their reasoning in words. The answers of 10 and 0 are mathematically acceptat

counting the shapes or they can use the information from the table they created. Students could choose categories other than triangle, rhombus

the method of adding on the tens and then the ones. The expression $26+4+3+10$ shows making a ten using some of the ones of 17 then adding

ew hundred. Students who select D or E have likely made an arithmetic error in subtracting or adding. The standard calls for doin

he same decomposition structure. Students can find the difference any way they choose and do not need to use Clare's strategy.

st know how many pencils Han and Priya each have. When they put their pencils together, it is an even number because each of l
e columns and rows incorrectly or confusing the number of squares in the rows and columns with the number of rows and colun

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then can be seen as the product of the number of rows and the number of square units in each row. For the distributive property

to find the area of the missing 2 foot by 4 foot rectangle decomposing the shape into 3 (or more) rectangles in a variety of ways and

For odd numbers, there are a few important observations students might make, beyond counting. There are 25 entries in the table so

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to find the decomposition of a ten if students subtract by place value. Students have a variety of ways to show their work including representing

Estimates in the first two questions help check student work on the two-step third question. If students make a calculation error in

Students who need to spend some extra time practicing multiplication. Students who select E are probably using addition instead of multiplication and students who select C go beyond grade level standards. Response A is a "how many in each group" version of division and response E is a "how many groups" version of the situation. One multiplication equation, response A, matches the situation and it matches regardless of whether students

is $\frac{4}{4}$ so $\frac{5}{4}$ is the next fourth after 1. The second problem takes two steps because it is not a unit fraction. Students can find $\frac{1}{3}$ and

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terms of division or multiplication (a missing factor equation). The instructions ask for two different ways to write each number and mean that they need to use one of the plants that only takes up a fraction of a foot of space. They will need to think carefully about the teacher to observe how students find the values of the sums and difference they decide upon. For students, the strategies that

select C seeing that the numerator and denominator both differ from the numerator and denominator of $\frac{3}{12}$ by 1. They may

ents might say that 26 bags is sufficient and they can spread the soil around. This is also an acceptable answer, reflecting an unde

nnected that idea to the notion of many one-degree angles making up these larger angles. Students who select B or D need more degrees and 60 degrees. Students who select E probably do not understand what acute and obtuse angles are. Students who sel

clock face divide the entire circle into 12 equal angles, each of which measures 30 degrees. Combined with the fact that half of 30

ve likely misread the question or do not understand the meaning of a right triangle. If students use a protractor to measure angles, they may not

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is or they can measure the angles and side lengths. If they measure the angles on the rectangle, however, they could get measurements such as

that approach to solve the entire problem. For the second problem, students may choose to write $25/8$ as a mixed number or may choose

distances. This makes sense because it is simpler to report one number but reporting the greatest or least distances is misleading so they increase by hundreds. Accurately labeling the number lines and placing the given number demonstrate an understanding of exact = for the second problem may need more work with expanded form. The remaining 3 problems compare numbers that are not

students who select B have made an arithmetic mistake and the answer is too small to be reasonable. Students who select D have probably selected D (and not select E) if they see the 15s in the numerators and reason that $8 < 11$ so $15/8 < 15/11$. Students may also be choosing a face as the base and multiplying its area and the corresponding height. Students who select B or D are using the wrong

they can say that it is at least the number of cubes that fit completely inside the prism. Students may choose response A if they shape. They choose the side lengths which amounts to choosing a length, two widths, and two heights. There are some constrain

that each of those parts represents $1/5$ square unit. Students could also say that the rectangle is 4 units long and $2/5$ units wide answers A and D assess their understanding of expressions and they will have many opportunities over the year to further develo duct. They may select D if they perform multiplication incorrectly and find $3/2 * 8$. Students can also solve this problem using ge d understanding the relationship between division and fractions. Students may fail to select E if they do not write the answer to t

ter. The provided solution uses the previous approach but either solution will have $6/5$ of a square kilometer shaded. If students draw an incorrec

actions can be taken as the product of their denominators. C interprets the area diagram as representing a product of fractions. E

le lengths of a square are multiplied by a factor the area of the square is also multiplied by that factor. Finally, they evaluate anot

ons. Students who select B or C do not understand the meaning of division as the value of each of these expressions is less than 1

an be ignored. Students may select F if they do not pay attention to the decimal and reason that 208 is greater than 45. It is impc

:he operations, then a closer look is in order at their responses to the itemson the corresponding operation which ask for reasoni

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cting by place value but because of all the zeros there will be a lot of decomposing units. Adding on is an efficient strategy for this problem. The

They have probably made an arithmetic error in their calculations and are not using the structure of the expressions. Students who seek a common denominator and calculating. Students who do express the sums and differences as a fraction or mixed number in order to

are making any calculations. They then sketch a new diagram to represent the relationship between the given distances before calculating

of the correct responses. This is a simple misconception which can readily be addressed. A more subtle misconception could lead

the operations of addition and multiplication and what they mean in the context of finding the volume of a figure. Students may

and division. Here the cards sometimes contain more than 4 numbers and the strategies will differ substantially depending how
ently. Other problems can be done using place value understanding and using the distributive property. Students may choose to
it so they are familiar with it. Here they do more arithmetic and interpret points on the graphs. In both cases, trying to figure out v
see patterns and likely be more creative in how they find ways to make 1. The first few tries may take longer as they need to exp
out place value. Implicit in the problem is that Clare's bathtub is generally shaped like a rectangular prism. The teacher may wish
d the volume of the remaining two pieces but this would require more calculation. The numbers for the multiplication calculation
who select A have probably misread the question or made a miscalculation. They can reason that $\frac{1}{3} > \frac{1}{4}$ and $\frac{2}{4} = \frac{1}{2}$. Studen
ling of the relationship between division and fractions or thinking about the meaning of division. For example if 10 sandwiches are

and division. The numbers for the second problem are more complex and partial quotients is a good strategy here, although st
:ation problem can be solved by multiplying by place value. In order to evaluate 0.4×0.2 , students can draw an area diagram or they can multipl

the meaning of above and below and with more practice will get better using these words correctly. Students who do not write words used correctly. If students answer one question correctly and one incorrectly then they need more practice comparing length

and 3 more fingers on another hand. I'm 2 short of a full 10-frame. Students may also give several clues. For example, for the number

role although they do not fit the description of the story which indicates that some of the dresses are pink and some are blue. Both

triangle, and square but these are the most likely choices. For example they could choose shapes with three sides, shapes with four sides, and shapes with

five sides. The response $20+10+6+7$ is the method of adding tens first and then ones. Students who select $20+10+6$ or $10+10+6+7$ are using the rest of those ones and the 10. The response $20+10+6+7$ is the method of adding tens first and then ones. Students who select $20+10+6$ or $10+10+6+7$

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y, students will need to identify that the given rectangle can be divided into a 4 unit by 5 unit rectangle and a 4 unit by 2 unit rectan

d adding their areas Student answers for the area of the room will depend on the values they find for the missing side lengths and th

so there cannot be the same number of even and odd numbers because 25 is odd. The numbers alternate between even and odd ir

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nting the numbers in expanded form or decomposing+49the numbers by place value to perform subtraction without writing the ni

in this problem and notice the discrepancy between the answer and the estimate, they have an opportunity to check and correct thei

nts who select C are probably confusing 4×5 with 4×6 . Students who select both C and D need more practice with single digit multiplication.

roups" division situation. The distractors all use the same numbers, namely the numbers given in the situation, but they all have the v
ents think of the first number in a product as the number of groups or the number of things in each group. The distractors all use thi

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and then find 1 as the third tick mark. A less likely but valid strategy would be to find $\frac{4}{3}$ and $\frac{6}{3}$ and identify that 1 is half of $\frac{6}{3}$.

as a product. Students who find two products quickly can be encouraged to find as many as they can as this will help them develop fluency in multiplication. They should be encouraged to think about where to place each plant so that it has enough distance on all sides. Implicit in the problem is that students will use the grid to help them think about where to place each plant. The strategies they use to determine which numbers to make out of their digits help to develop number sense as well as mental strategies to estimate.

select D if they do not understand the meaning of the numerator and denominator in a fraction. They may fail to select E if they do not understand the meaning of the numerator and denominator in a fraction.

Understanding of the situation. The important point is for students to realize that only whole numbers make sense as answers so they ei

practice measuring angles and in particular practice with problems that use the fact that there are 180 degrees in a line to find the
ect A or D may be measuring inaccurately with a protractor rather than using the additivity of angles. These students may understar

0 is 15 this is the key idea that will help students find how long it takes for the hour hand to move through a 15 degree angle.

t choose B or D because they may get a measurement close to but not equal to 90 degrees. This is anacceptable response but a personal intervie

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as 89 or 91. If they do and say that it is not a rectangle, this is acceptable. They could also try to measure the sides of the rhombus and think that th

choose to write 6 as a fraction. They can also use the number line if they have the patience to put in the tick marks.

instead the number usually reported is almost exactly halfway between. After thinking about this, students next work with unit conversion place value. Since the number does not lie exactly on a tick mark, students need to estimate its location. They are not expected to get equal. Students who miss one or more of these problems may have misread the numbers or may need more work with place value.

probably added 1 to the numerator and denominator which does not give an equivalent fraction. Students who do not select C may not select F and not G if they compare the decimals as if they were whole numbers, that is not paying attention to the decimal or the 0's rounding operation. Students may not select C or E if they do not think about the different ways of decomposing the prism.

count the cubes that are shown in the image. Students may select response C if they notice that 12 cubes will fit inside the prism but
ts for the choices that they can make but there are many possibilities that meet the criteria and are realistic. Students may use unre

and find the product but the numbers are deliberately made small to encourage thinking concretely about the meaning of each sha
p these skills. Students who select B or F need more work finding fractional areas as B represents the number of parts while F repre:
neral number sense. Response A is too small as it is less than $1/2$ of 8. Response C is too large as it is very close to 8. Response D is l
the question as a mixed number or if they do so but donot recall that $2/4$ and $1/2$ are equivalent. These students may need more pra

st diagram for the second question and answer the third question correctly based on the diagram, they still demonstrate an understanding of fraction

E describes how to find the area. Students may select B if they do not pay attention to the fact that the unit in the picture is a full sq

her product, this time of a fraction and a whole number.Note that the final answer for the area of the bathroom floor depends on th

L. The relationship between multiplication and division is essential for all the different ways students have learned to find whole num

ortant for students to see inequalities with the smaller number first (as in C) or second (as in D). Students who fail to select both of t

ing. It could be that students understand how to perform the operations but have not been careful or it could be that they need mor

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division problem can be turned into a multiplication problem by recognizing that there are 50 groups of 0.02 in 1. Alternatively, students might reaso

Students who select D are probably thinking that adding the same amount to the numerator and denominator does not change the value of the fraction. To make the comparisons will show fluency in that work. Students who select D or F likely need more work with mixed numbers.

Calculating the actual distances. It is not expected that students will plot the locations of Lin's house and Han's house precisely. The m

to choosing E and not choosing D, namely that points R and Q lie on the same horizontal line but that means that their vertical coo

Students may not select D if they do not see that the prism can be divided horizontally into 3 layers of 20. Students may not select E if they do not

How large the goal number is. The important part of this activity is less on how close a student gets to the goal number, though that is a goal. Students should do all of the problems with the standard algorithm and this will provide them with ample practice. It is not essential for students to know which set of coins a point on the graph corresponds to can lead to different solutions. This is clearest for the weight and value graph. Experiment with the fractions to see how to combine them in an effort to get to 1. The numbers have been designed so that there is no need to highlight this natural modeling assumption. This problem can also be made more hands-on by asking students to take measurements. The numbers have been chosen to be relatively friendly depending on how students divide the shape and the order in which they multiply the factors. Students who select B have probably made a calculation error or misread the - sign for a + sign. Since $5/11 < 1/2$, the result of the subtraction is less than 1. If the sandwiches are split equally by 12 people then each person will get less than 1 sandwich because there are more people than sandwiches. The procedure

Students can use the same strategy and multiply up or draw a diagram to help them work through the division procedure.

For the multiplication problem, multiply both factors by 10, take the product of whole numbers, and then divide the result by 100. For the division problem, students may use an area diagram.

es for both the first and fifth or both the second and sixth statements need more directed practice using the positional words above
is of objects. For this item, the teacher reads each statement and gives time for students to record their answer before moving on to

er 17, they could say: I'm 10 and some more. I'm more than 3 hands of fingers. I'm 3 hands and 2 more fingers. Only the last of these

h Addends Unknown problems are conditional in nature, that is, the answer to the second question depends on the answer to the f

that Priya could have, for example, 5 pencils so response B could be true. Students who choose response D or fail to choose response E are lik

60 as a sum is if the ones of the three numbers add up to exactly 10. There are two sets of numbers like this, one of them gives the desired re:

gle. Students may answer both questions numerically, that is they may say that the area of the rectangle is 28 square units and the expressio

1 both the rows and columns so this allows them to identify large parts of the table with the same number of even and odd numbers (for exam
umbers out in expanded form. Students may also use equations and add on to find the difference. This method works well for the second pro

e same numbers, namely the numbers given in the situation, but none of them makes sense in terms of the situation. This item complements

do not perform well on this item should be encouraged to draw different quadrilaterals, with or without the support of a grid.

uency with multiplication and division. The numbers are divided into 3 groups. The first group are smaller numbers with factors that they may help place the plants. The teacher may wish to highlight this natural modeling assumption. For the plants that need a whole number of feet of space, the teacher may want to estimate the value of each sum or difference. These mental strategies are important to choose the best 3-digit numbers for each situation. It might

value of different angles. Students can reason about E using either the additivity of angles or by thinking about a pair of perpendicular lines.

versions of time to estimate how long it would take to travel to the moon by car, if there were a road that went there. This involves multiplying, place the number in its precise position but it should be between the correct two tick marks and, in the first case, closer to 17,000 than to 18

realistic side lengths, such as 1 foot wide and 100 feet long, which meet the given criteria. The diagram will not necessarily reflect the measure

larger than 8 so it is definitely too large. This kind of number sense is a valuable skill and students who solve this problem via a process of elim

ns. A common error for the drawing may be to shade $\frac{1}{5}$ of a kilometer for the width or length of the part of the farm where corn is grown. Note that students c

the area of each tile and student work here needs to be evaluated based on their answer for the area of each tile, assuming their solution me

n that the quotient has the same value as $68300 \div 3$.By the end of the year, students should be able to think productively about these problems, understand

Most important point is that Han is farther from the school than Jada and that Lin is closer. The relative distances between Jada and Lin, Jada a

not see the vertical slices that give 4 groups of 15 cubes. Students can also solve this problem by calculating the volume of the prism in a way that

is supposed to serve as motivation and guidance for their calculations, than on their thinking and the practice they get developing fluency with it. Do all of these problems at once. These problems can be used as needed for practice or to evaluate student fluency with multiplication. For example, as 2 quarters have the same value and weight as 1 half dollar. For the number of coins and weight, four quarters and a dime have almost the same way to make 1 with just two numbers there are many ways to make 1 with three (or more) numbers. The game can be beneficially played repeatedly. The numbers students are likely to get with their own measurements will not be as nice as the ones provided in the problems. Students may make small calculation errors but still demonstrate good understanding of how volume works. The arithmetic part and the action must also be less than $\frac{1}{2}$. Students who fail to select C have probably made a calculation error. Here, they can observe that is equivalent problems involving expressions with multiplication assess a different skill. In each case, students can compare the expression with 1 using what they

3 and below. For this item, the teacher reads each statement and gives time for students to record their answer before moving on to the next

clues is needed but the communication practice and guesses that the partner makes all develop important number sense. This activity requires

first. This type of language is difficult for students and so the language used here is identical to what they saw in the lessons with this problem

rely not thinking about the given information that Han and Priya have the same number of pencils. Students who select C have probably not r

ns both have value 28. These students may understand the relationship between multiplication and area but the response does not allow any

mple in the addition table for 1 to 4 the number of even and odd numbers are equal). The fact that 15 is not in the table should be familiar be

y recognize or find with division or multiplication. The second group are larger but also have recognizable factors. The third group are number space, this means that they will be located at the points where the gridlines meet. For the plants that take up less space they will still be horiz

ination and this line of reasoning will have opportunities to address their understanding of a fraction of a whole number directly in other iter

can use the meaning of division to answer the last question, independent of their diagram: one out of 5 equal parts of 6 square kilometers $6 \div 5$ or $6/5$ sq

ethod is to multiply that area by the number of tiles. In the same way, if students answer thesecond question incorrectly and then use this are

ind Han, and all three to the school do not need to be accurate. The final question gives students a chance to check and possibly correct their

the 4 operations. It is recommended that the class play a round of this game together to communicate the rules. The cards vary in terms of di

the same weight as 5 nickels and on the graph these two points will be indistinguishable. Students have not formally worked with the relationship until students develop a sense of the numbers and their combinations and at that point it has served its purpose and starts to become more complex, making the arithmetic more difficult and possibly beyond the standards but it will make the problem more meaningful and they might be

less than $1/2$. so the value of the expression is less than $1/2$. Students can find the value of expressions D and E more readily than the others or reason that they learned about how to compare a product with one of the factors based on the size of the other factor. The numbers are chosen to be co

1 type. If students struggle with this problem type, we recommend doing this in a personal interview in order to make sure the student under

y conclusion in this direction. Their work on other problems that do not show the individual squares in figures will help show how well they u

ecause the largest number $5 + 5$ is and the location of the 7's along the diagonal will also be familiar, or students can look for them and count

rs close to 100 and students may need to experiment to find factors. This activity can be repeated as needed, with these numbers or others, a

work placing the locations of Lin, Jada, and Han on the number line. While the exact locations of Lin and Han are complex, students can

difficulty and the size of the numbers and can be selected accordingly. Use the Number Fluency cards attached as a blackline master to this assignment between cents and dollars and so they may represent the value, in dollars, of the coins as fractions or as decimals. Either is acceptable and

complex so finding the value of the expression and comparing with 1, while it will always work, takes time and can lead to calculation errors.

and is intended to give the teacher an opportunity to observe students work and evaluate their fluency

