Directions: Answer the following question(s).

1 Which part of the expression below should be solved first?

$$25 \div 5 + [10 - (4 \times 2) + 5] + 12 - 2$$

A. 4×2
B. $10 - 5$
C. $12 - 2$
D. $25 \div 5$

Master ID: 2205954 Revision: 3
Correct: A
Rationale:
A. The 4 x 2 should be solved first because it is in parentheses.
B. This is the result of selecting the brackets before the parentheses.
C. This is the result of selecting the right part of the expression to be completed first despite all of the other rules of order.
D. This is the result of selecting the left part of the expression to be completed first despite the parentheses.
Rubric: 1 Point(s)
Standards:
MGSE5.OA.1

2 In which of the following numbers is there a digit that represents 10 times as much as the value represented in the place to its right and $\frac{1}{10}$ of the value represented in the place to its left?

A. 2.11
B. 1.11
C. 2.12
D. 1.12

Master ID: 3746679 Revision: 1
Correct: B
Rationale:
A. The student may understand that the middle digit needs to be considered. The student correctly identified 0.01 as being $\frac{1}{10}$ of 0.1 but incorrectly identified 2 as being ten times greater than 0.1.
B. *Correct Answer;* The student understands that only the middle digit needs to be considered, because there are implied zeroes left of the ones place, and in the thousandths place and beyond. The digit 1 in the tenths place represents 1/10 which is both 10 times 1/100 and also 1/10 of 1.
C. The student may not understand that the middle digit needs to be considered. The student incorrectly identified 0.1 as being $\frac{1}{10}$ of 2 and incorrectly identified 0.1 as being ten times greater than 0.02.
D. The student may understand that the middle digit needs to be considered. The student correctly identified 1 as being ten times greater than 0.1 but incorrectly identified 0.02 as being $\frac{1}{10}$ of 0.1.
Standards:
MGSE5.NBT.1

Directions: Answer the following question(s).

3 How is $6 \times 1 + 5 \times \left(\frac{1}{10}\right) + 2 \times \left(\frac{1}{100}\right)$ written in standard form?

A. 652
B. 256
C. 6.52
D. .652

Master ID: 3248450 Revision: 1
Correct: C
Rationale:
A. Student(s) may not have known that the multiplication of fractions required the digit 5 to be placed in the tenths place and the digit 2 to be placed in the hundredths place. Student(s) may have thought all three digits should be placed to the left of the decimal point.
B. Student(s) may not have understood how to multiply fractions and whole numbers. Student(s) may have therefore thought the 2 belonged in the hundreds place, the 5 belonged in the tens place, and the six belonged in the ones place.
C. Correct answer
D. Student(s) may have thought that all three digits should be placed to the right of the decimal point.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.3a

4

Type of Fish	Length in centimeters
Brown Trout	46.05
Rainbow Trout	46.35
Brook Trout	45.05
Lake Trout	44.95

Sam went fishing at a lake in Idaho and caught 4 different types of trout. The type and length of each trout he caught are listed in the table. Which type of trout measured the smallest in length?

A. Brown Trout
B. Rainbow Trout
C. Brook Trout
D. Lake Trout

Master ID: 3259172 Revision: 1
Correct: D
Rationale:
A. Student(s) may have only looked at the digits to the right of the decimal point and overlooked the whole number.
B. Student(s) may have not read the question carefully and chose the decimal with the greatest value and not the least value.
C. Student(s) may have only looked at the digits to the right of the decimal point and overlooked the whole number. Student(s) may have thought the digits, 0 and 5, to the right of the decimal point made 45.05 the smallest in length since the decimal only represents 5 hundredths.
D. Correct answer
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.3b

Directions: Answer the following question(s).

5 Multiply:

902 × 20 =

A. 922
B. 1,804
C. 1,840
D. 18,040

Master ID: 3272271 Revision: 1
Correct: D
Rationale:
A. Student(s) may not have carefully read the problem and may have added instead of multiplied.
B. Student(s) may have only multiplied 902 by 2 instead of 20.
C. Student(s) may not have remembered to multiply the zero in the tens place of 902.
D. Correct answer
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.5

6 A small business used 1,568 kilowatt hours of electricity during the 28 days of February.

What was their daily use?

A. 52
B. 56
C. 67
D. 78

Master ID: 3746495 Revision: 1
Correct: B
Rationale:
A. The student may have estimated the answer by dividing 1500 by 30, and then selected the closest answer to 50.
B. *Correct answe*r; Because 28 is close to 30, and 30 would go into 1500 fifty times, one approach would be to multiply 28 by 50, which is 1400. Subtracting 1400 from 1568 leaves 168. Because we now know that 5 times 28 would be 140 (place value), 6 times 28 would be 168. Fifty plus 6 is 56.
C. The student may have divided 1568 by 20, because 28 is between 20 and 30, then selected the next smaller answer, realizing that 20 is smaller than 28.
D. The student may have divided 1568 by 20, or used 20 as an estimate.
Standards:
MGSE5.NBT.6

Directions: Answer the following question(s).

7 The table below shows different amounts of flour each cookie recipe needs. Jorge has 5 cups of flour. Which 2 cookie recipes can he make to use *exactly* 5 cups of flour?

Type of Cookie	Flour (in cups)
Chocolate Chip	2 1/4
Sugar	4 3/4
Oatmeal Raisin	2 3/4
Gingerbread	5 1/2
Peanut Butter	1 1/4
Snickerdoodle	3 1/2

A. Oatmeal Raisin and Peanut Butter
B. Chocolate Chip and Oatmeal Raisin
C. Sugar and Peanut Butter
D. Chocolate Chip and Peanut Butter

Master ID: 3245386 Revision: 1
Correct: B
Rationale:
A. Student(s) may have added the fractions together and realized that 5 cups of flour would be enough to make both recipes, but did not realize they needed to find ones that used "exactly" 5 cups of flour.
B. Correct answer
C. Student(s) may have added the whole parts without adding in the fractional pieces to get the 5 cups of flour.
D. Student(s) may have added the fractions together and realized that 5 cups of flour would be enough to make both recipes, but did not realize they needed to find ones that used "exactly" 5 cups of flour.
Rubric: 1 Point(s)
Standards:
MGSE5.NF.2

8 The table below shows different amounts of flour that different cookie recipes will need.

Type of Cookie	Flour (in cups)
Chocolate Chip	$2\frac{1}{4}$
Sugar	3
Oatmeal Raisin	$2\frac{3}{4}$
Gingerbread	$5\frac{1}{2}$
Peanut Butter	$1\frac{1}{4}$
Snickerdoodle	$3\frac{1}{2}$

Tatianna has 7 cups of flour. She is making oatmeal raisin and snickerdoodle cookies. How much flour will she have left?

A. $6\frac{1}{4}$
B. $1\frac{2}{6}$
C. $1\frac{1}{4}$
D. $\frac{3}{4}$

Master ID: 3245375 Revision: 1
Correct: D
Rationale:
A. Student(s) may not have subtracted the total amount of flour used from the amount she has.
B. Student(s) may have added the numerators and denominators of the fractions together instead of finding their LCD.
C. Student(s) may have subtracted the whole parts and just carried down the fractions part, not knowing, or forgetting, how to regroup when subtracting.
D. Correct answer
Rubric: 1 Point(s)
Standards:
MGSE5.NF.2

Directions: Answer the following question(s).

9 Tarik wrote the expression $(5 \times 25) - 12$. Which question means the same as the expression Tarik wrote?

A. What is the value of the product of 5 and 12 less than 25?

B. What is the value of the product of 5 and 12 more than 25?

C. What is the value of 12 less than the product of 5 and 25?

D. What is the value of 12 more than the product of 5 and 25?

Master ID: 2205958 Revision: 3
Correct: C
Rationale:
A. This is the result of interpreting the mathematical expression as meaning to subtract 12 from 25 before multiplying by 5.
B. This is the result of interpreting the mathematical expression as meaning to add 12 to 25 before multiplying by 5.
C. This is the result of correctly interpreting and equating the verbal and mathematical expressions.
D. This is the result of interpreting "12 more than" as meaning to subtract instead of add.
Rubric: 1 Point(s)

10 What is the value of the expression below?

(20 ÷ 4) × (16 + 2)

A. 23

B. 82

C. 90

D. 288

Master ID: 3271929 Revision: 1
Correct: C
Rationale:
A. Student(s) may have added the two parentheses together instead of multiplying.
B. Student(s) may have disregarded the parentheses and worked from left to right.
C. Correct answer
D. Student(s) may have subtracted 4 from 20 instead of dividing 20 by 4.
Rubric: 1 Point(s)
Standards:
MGSE5.OA.1

Directions: Answer the following question(s).

11 Jesse solved the equation shown.

$$14 \div 10^3 = n$$

Which correctly states the solution and an explanation of how Jesse solved the equation?

A. Jesse moved the decimal 3 places to the left, giving him 0.014 as the solution.

B. Jesse moved the decimal 2 places to the left, giving him a 0.14 as the solution.

C. Jesse moved the decimal 1 place to the right, giving him 140 as the solution.

D. Jesse moved the decimal 3 places to the right, giving him 140,000 as the solution.

Master ID: 305026 Revision: 4
Correct: A
Rationale:
A. This is the result of understanding that when you divide by a power of ten, the exponent represents the number of places to move the decimal point to the left.
B. This is the result of thinking since 10^3 = 1,000, which is the same as 10 with two zeros added at the end, you should move the decimal point two places to the left.
C. This is the result of confusing multiplication by a power of ten with division by a power of ten and ignoring the exponent.
D. This is the result of confusing multiplication by a power of ten with division by a power of ten.
Rubric: 1 Point(s)

12 Rayna is completing a project on the state of California. The chart shows the populations of some cities.

California City Populations

City	Estimate	Expanded Form
Los Angeles	3,900,000	3.9×10^6
San Diego	1,400,000	1.4×10^3
San Francisco	840,000	8.4×10^4
Redondo Beach	68,000	6.8×10^5

Rayna included 2 forms of the populations, the estimated standard form and the expanded form of her estimated number. Rayna only wrote 1 correct expanded form. For which city did Rayna correctly write the expanded form?

A. Los Angeles

B. San Diego

C. San Francisco

D. Redondo Beach

Master ID: 577766 Revision: 3
Correct: A
Rationale:
A. This is the correct answer. The decimal point moves to the right six times when you multiply by 10^6 since six is the value of the exponent.
B. This is the result of incorrectly finding the answer by counting the zeroes after the second comma rather than moving the decimal point over for the number of spaces.
C. This is the result of incorrectly finding the answer by counting the zeroes in the number and not moving the decimal point over for the number of spaces.
D. This is the result of incorrectly finding the answer by counting the total number of digits in the number and not moving the decimal point over for the number of spaces.
Rubric: 1 Point(s)

Directions: Answer the following question(s).

13 Compare the numbers 1,725 and 5,712. Which statement is true?

A. The value of the digit 2 in 1,725 is 10 times greater than the value of the digit 2 in 5,712.

B. The value of the digit 1 in 1,725 is 10 times greater than the value of the digit 1 in 5,712.

C. The value of the digit 7 in 1,725 is 10 times greater than the value of the digit 7 in 5,712.

D. The value of the digit 2 in 5,172 is 10 times greater than the value of the digit 2 in 1,725.

Master ID: 2205961 Revision: 3
Correct: A
Rationale:
A. This is the result of recognizing the value of the 2 in 1,725 is 2 x 10 while in 5,712 has a value of 2 x 1.
B. This is the result of incorrectly comparing 1,000 to 10 and thinking that 10 x 10 is 1,000.
C. This is the result of not recognizing that the 7 is in the hundreds place in both numbers, and so it has the same value in both numbers.
D. This is the result of recognizing that the values of the digit 2 is different in each number but reversing the values. 2 is not 10 times greater than 20.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.1

14 Find the sum:

904.29 + 212.06 =

A. 692.23

B. 1,116.25

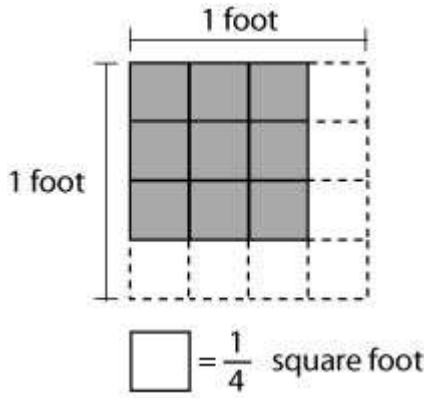
C. 1,116.35

D. 1,117.52

Master ID: 3272252 Revision: 1
Correct: C
Rationale:
A. Student(s) may not have carefully read the problem and subtracted instead of added.
B. Student(s) may have made a mistake and forgot to carry the one to the tenths place when adding.
C. Correct answer
D. Student(s) may not have carefully solved the problem or made a transposition error and added 212.60 to 904.92 instead of 904.29.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.7

Directions: Answer the following question(s).

15 Tory made some place mats using square tiles. Each square tile has an area of $\frac{1}{4}$ square foot.



Tory wants to find the area of the place mat by counting the square tiles and by multiplying. What is the area, in square feet, of the place mat?

A. $\frac{9}{16}$ square foot

B. $\frac{1}{2}$ square foot

C. $\frac{3}{4}$ square foot

D. $\frac{9}{7}$ square foot

Master ID: 2112287 Revision: 3
Correct: A
Rationale:
A. This is the result of correctly finding the area by multiplying 3/4 x 3/4 which equals 9/16 square foot.
B. This is the result of counting around the shaded area to total 8 squares out of 16, reduced to 1/2.
C. This is the result of estimating that 3/4 of the shape is shaded.
D. This is the result of incorrectly solving by counting 9 shaded squares and 7 unshaded squares.
Rubric: 1 Point(s)
Standards:
MGSE5.NF.4b

16 Mrs. Kane made 6 pounds of fruit salad. She put the salad into containers. Each container holds $\frac{1}{3}$ pound of fruit salad. Which expression shows how many containers Mrs. Kane used to store her fruit salad?

A. $6 \div \frac{1}{3}$

B. $6 \times \frac{1}{3}$

C. $6 + 3$

D. $6 - 3$

Master ID: 305372 Revision: 4
Correct: A
Rationale:
A. Dividing the total amount of fruit salad by the amount each container holds is the correct way to determine the number of containers used.
B. This expression uses multiplication to solve the problem instead of division.
C. This is the result of understanding that the number of containers needs to be larger than the amount of fruit salad, but this expression uses addition instead of division.
D. This expression uses subtraction instead of division.
Rubric: 1 Point(s)
Standards:
MGSE5.NF.7b

Directions: Answer the following question(s).

17 The parents at Hilltop School bought 4 picnic tables and placed them outdoors, behind the school. The 4 tables take up $\frac{1}{12}$ of the outdoor space and are all the same size. What fraction of the outdoor space is taken up by 1 picnic table?

A. $\frac{1}{48}$

B. $\frac{1}{4}$

C. $\frac{48}{1}$

D. $\frac{12}{4}$

Master ID: 305388 Revision: 3
Correct: A
Rationale:
A. 1/12 ÷ 4 = 1/48.
B. This the fraction of the total area of tables taken up by 1 table.
C. This is the result of inverting the 1/12 and multiplying by 4.
D. This is the result of inverting the 1/12 and the 4, and multiplying.
Rubric: 1 Point(s)
Standards:
MGSE5.NF.7c

18 How many $\frac{1}{4}$ pound servings are in 11 pounds of pinto beans?

A. 44

B. $2\frac{3}{4}$

C. $\frac{4}{11}$

D. $\frac{1}{44}$

Master ID: 3247862 Revision: 1
Correct: A
Rationale:
A. Correct answer
B. Student(s) may have thought to multiply the whole number and unit fraction instead of divide. Student(s) may have then multiplied across and changed the improper fraction into a mixed number.
C. Student(s) may have known that this was a division problem, but may have made a mistake by finding the reciprocal of both fractions before multiplying across.
D. Student(s) may have recognized that this was a division of fractions problem, but may not have known how to set up this division problem. Student(s) may have confused the order of the whole number and the unit fraction before dividing. Student(s) may have found the reciprocal and then multiplied across.
Rubric: 1 Point(s)
Standards:
MGSE5.NF.7c