Simplifying and Solving Equations (A)

Name: _____ Date: _____

Determine the value of the unknown in each equation.

1. $2(3-h)-6=-5h$
2. $7+9d=7d+3$
3. $-2(4+3y)=-2(4+y)$
4. $-7+4c=7c+6$
5. $5(1+s)=-9s+6$
6. $3+v=2(2v-1)$
7. $-2-4w=7w-8$
8. $-6(1-m)=9-2m$
9. $-2q-3=-2(2q+1)$
10. $6n+7=2n+5$
11. $2(3x-2)+9=-5x$
12. $3(1+p)=-5(p+1)$
13. $3(1-3g)=-7+g$
14. $1+2b=4b+9$
15. $2z+6=3z+1$
16. $5a-2=-9a+8$
17. $6t-5=-9t-9$
18. $-1+3f=-7-6f$
19. $2+r=7+6r$
20. $-6k+1=-2+7k$

Simplifying and Solving Equations (A) Answers

Name: _____ Date: _____

Determine the value of the unknown in each equation.

1. $2(3-h)-6=-5h$
   $h=0$

2. $7+9d=7d+3$
   $d=-2$

3. $-2(4+3y)=-2(4+y)$
   $y=0$

4. $-7+4c=7c+6$
   $c=-4\frac{1}{3}$

5. $5(1+s)=-9s+6$
   $s=\frac{1}{14}$

6. $3+v=2(2v-1)$
   $v=1\frac{2}{3}$

7. $-2-4w=7w-8$
   $w=\frac{6}{11}$

8. $-6(1-m)=9-2m$
   $m=1\frac{7}{8}$

9. $-2q-3=-2(2q+1)$
   $q=\frac{1}{2}$

10. $6n+7=2n+5$
    $n=-\frac{1}{2}$

11. $2(3x-2)+9=-5x$
    $x=-\frac{5}{11}$

12. $3(1+p)=-5(p+1)$
    $p=-1$

13. $3(1-3g)=-7+g$
    $g=1$

14. $1+2b=4b+9$
    $b=-4$

15. $2z+6=3z+1$
    $z=5$

16. $5a-2=-9a+8$
    $a=\frac{5}{7}$

17. $6t-5=-9t-9$
    $t=-\frac{4}{15}$

18. $-1+3f=-7-6f$
    $f=-\frac{2}{3}$

19. $2+r=7+6r$
    $r=-1$

20. $-6k+1=-2+7k$
    $k=\frac{3}{13}$

Simplifying and Solving Equations (B)

Name: _____ Date: _____

Determine the value of the unknown in each equation.

1. $-8c + 8 = 5c + 2$
2. $6 - 7w = -w + 6$
3. $-2 + 6d = 4d + 8$
4. $-6g - 5 = -5g + 6$
5. $-4(a + 2) - 1 = -5a$
6. $8b + 5 = -1 + 6b$
7. $-6j + 6 = j + 3$
8. $2(f + 2) = 5 - 3f$
9. $1 + 5n = n + 8$
10. $-3(z + 2) = -9z + 1$
11. $-3 + 8t = -1 + 5t$
12. $-2(1 + h) = -7(h + 1)$
13. $-6p = -2(4 - p) - 7$
14. $-2(2 + 3x) = -3(2 - 3x)$
15. $-8 - m = 7 - 6m$
16. $-9 - 6y = 2 + 2y$
17. $-4(2r + 1) = -6 + r$
18. $-5 - k = -8 - 5k$
19. $9s - 7 = -4s + 7$
20. $2(q - 3) - 8 = -q$

Simplifying and Solving Equations (B) Answers

Name: _____ Date: _____

Determine the value of the unknown in each equation.

1. $-8c + 8 = 5c + 2$
   $c = \frac{6}{13}$

2. $6 - 7w = -w + 6$
   $w = 0$

3. $-2 + 6d = 4d + 8$
   $d = 5$

4. $-6g - 5 = -5g + 6$
   $g = -11$

5. $-4(a + 2) - 1 = -5a$
   $a = 9$

6. $8b + 5 = -1 + 6b$
   $b = -3$

7. $-6j + 6 = j + 3$
   $j = \frac{3}{7}$

8. $2(f + 2) = 5 - 3f$
   $f = 1\frac{4}{5}$

9. $1 + 5n = n + 8$
   $n = 1\frac{3}{4}$

10. $-3(z + 2) = -9z + 1$
    $z = 1\frac{1}{6}$

11. $-3 + 8t = -1 + 5t$
    $t = \frac{2}{3}$

12. $-2(1 + h) = -7(h + 1)$
    $h = -1$

13. $-6p = -2(4 - p) - 7$
    $p = 1\frac{7}{8}$

14. $-2(2 + 3x) = -3(2 - 3x)$
    $x = \frac{2}{15}$

15. $-8 - m = 7 - 6m$
    $m = 3$

16. $-9 - 6y = 2 + 2y$
    $y = -1\frac{3}{8}$

17. $-4(2r + 1) = -6 + r$
    $r = \frac{2}{9}$

18. $-5 - k = -8 - 5k$
    $k = -\frac{3}{4}$

19. $9s - 7 = -4s + 7$
    $s = 1\frac{1}{13}$

20. $2(q - 3) - 8 = -q$
    $q = 2\frac{4}{5}$

Simplifying and Solving Equations (C)

Name: _____ Date: _____

Determine the value of the unknown in each equation.

1. $8(b+1) = -3(2+b)$
2. $-3z - 1 = 1 - 7z$
3. $w - 5 = 8w + 5$
4. $-5f - 8 = 2(3f + 2)$
5. $6g + 5 = -2(1 + 2g)$
6. $5r = -3(r + 3) - 7$
7. $-7q + 8 = -8 + 3q$
8. $-4p - 2 = 6p + 1$
9. $-5 + 8a = -4 + 7a$
10. $5k = -2(1 + 4k) - 7$
11. $9 + 4t = -3(1 - 2t)$
12. $-2(n + 4) - 2 = 9n$
13. $-8 + 6m = -6m + 8$
14. $6x - 6 = 9x - 3$
15. $-9j - 1 = 9j - 5$
16. $5s + 3 = -s - 4$
17. $-h = -3(3h + 1) + 1$
18. $-6(1 - v) = 5(1 - v)$
19. $-7 - 5d = 7 - 9d$
20. $-6y = -5(1 - y) - 5$

Simplifying and Solving Equations (C) Answers

Name: _____ Date: _____

Determine the value of the unknown in each equation.

1. $8(b+1) = -3(2+b)$
   $b = -1\frac{3}{11}$

2. $-3z - 1 = 1 - 7z$
   $z = \frac{1}{2}$

3. $w - 5 = 8w + 5$
   $w = -1\frac{3}{7}$

4. $-5f - 8 = 2(3f + 2)$
   $f = -1\frac{1}{11}$

5. $6g + 5 = -2(1 + 2g)$
   $g = -\frac{7}{10}$

6. $5r = -3(r + 3) - 7$
   $r = -2$

7. $-7q + 8 = -8 + 3q$
   $q = 1\frac{3}{5}$

8. $-4p - 2 = 6p + 1$
   $p = -\frac{3}{10}$

9. $-5 + 8a = -4 + 7a$
   $a = 1$

10. $5k = -2(1 + 4k) - 7$
    $k = -\frac{9}{13}$

11. $9 + 4t = -3(1 - 2t)$
    $t = 6$

12. $-2(n + 4) - 2 = 9n$
    $n = -\frac{10}{11}$

13. $-8 + 6m = -6m + 8$
    $m = 1\frac{1}{3}$

14. $6x - 6 = 9x - 3$
    $x = -1$

15. $-9j - 1 = 9j - 5$
    $j = \frac{2}{9}$

16. $5s + 3 = -s - 4$
    $s = -1\frac{1}{6}$

17. $-h = -3(3h + 1) + 1$
    $h = -\frac{1}{4}$

18. $-6(1 - v) = 5(1 - v)$
    $v = 1$

19. $-7 - 5d = 7 - 9d$
    $d = 3\frac{1}{2}$

20. $-6y = -5(1 - y) - 5$
    $y = \frac{10}{11}$

Simplifying and Solving Equations (D)

Name: _____ Date: _____

Determine the value of the unknown in each equation.

1. $-2(3+t)-8=5t$
2. $7y-2=-4y+7$
3. $4a-1=-9a+8$
4. $1+m=4-4m$
5. $-4s+5=5+8s$
6. $2f-8=-5-9f$
7. $1-8j=-9-3j$
8. $5q=3(1+2q)-4$
9. $-4r-3=4+9r$
10. $7+3b=5b+8$
11. $-4-h=h-9$
12. $-5+3z=-6z+7$
13. $3(1+p)-2=-p$
14. $-8d-9=2+3d$
15. $-3-2v=-5+9v$
16. $4-g=2+9g$
17. $2k-3=7-3k$
18. $8+9x=7(x-1)$
19. $1+n=9n-1$
20. $c+3=-7-8c$

Simplifying and Solving Equations (D) Answers

Name: _____ Date: _____

Determine the value of the unknown in each equation.

1. $-2(3+t)-8=5t$
   $t=-2$

2. $7y-2=-4y+7$
   $y=\frac{9}{11}$

3. $4a-1=-9a+8$
   $a=\frac{9}{13}$

4. $1+m=4-4m$
   $m=\frac{3}{5}$

5. $-4s+5=5+8s$
   $s=0$

6. $2f-8=-5-9f$
   $f=\frac{3}{11}$

7. $1-8j=-9-3j$
   $j=2$

8. $5q=3(1+2q)-4$
   $q=1$

9. $-4r-3=4+9r$
   $r=-\frac{7}{13}$

10. $7+3b=5b+8$
    $b=-\frac{1}{2}$

11. $-4-h=h-9$
    $h=2\frac{1}{2}$

12. $-5+3z=-6z+7$
    $z=1\frac{1}{3}$

13. $3(1+p)-2=-p$
    $p=-\frac{1}{4}$

14. $-8d-9=2+3d$
    $d=-1$

15. $-3-2v=-5+9v$
    $v=\frac{2}{11}$

16. $4-g=2+9g$
    $g=\frac{1}{5}$

17. $2k-3=7-3k$
    $k=2$

18. $8+9x=7(x-1)$
    $x=-7\frac{1}{2}$

19. $1+n=9n-1$
    $n=\frac{1}{4}$

20. $c+3=-7-8c$
    $c=-1\frac{1}{9}$

Problem-Solving Strategy: Identify Extra Information

The graph of the function $y - 2x = 5$ has no points in the fourth quadrant. Find the slope of the line $y - 2x = 5$.

Understand the problem.

- **What do you want to know?**
  the slope of the line given by $y - 2x = 5$

- **What information is given?**
  $y - 2x = 5$; no points in fourth quadrant

Plan how to solve it.

- **What strategy can you use?**
  You can identify extra information that is not needed to solve the problem.

Solve it.

- **How can you use this strategy to solve the problem?**
  Reread the problem. Cross out any unnecessary facts. Then you can focus on the needed facts to solve the problem.

~~The graph of the function $y - 2x = 5$ has no points in the fourth quadrant.~~ Find the slope of the line $y - 2x = 5$.

Write the equation in slope-intercept form. Then determine the slope.

$y - 2x = 5$

$y = 5 + 2x$

$y = 2x + 5$ slope-intercept form

- **What is the answer?**
  The slope is 2, or $\frac{2}{1}$.

Look back and check your answer.

- **Is your answer reasonable?**
  You can check your answer by finding two points and using the formula for slope.

Let $x = 1$.	Let $x = 2$.	$(1, 7)$ and $(2, 9)$
$y - 2x = 5$	$y - 2x = 5$	
$y - 2(1) = 5$	$y - 2(2) = 5$	slope $= \frac{9 - 7}{2 - 1}$
$y - 2 = 5$	$y - 4 = 5$	
$y = 7$	$y = 9$	$= \frac{2}{1}$, or 2

The answer is reasonable.

Understand, Plan, Solve, Look back

In each problem, cross out the extra information. Then solve the problem.

1. The x-intercept of the function $2x + 20 = 4y$ is $^{-}10$. What is the slope of the line given by $2x + 20 = 4y$?

Answer _____

2. Find the slope of the line given by $5y - 15x = 3$. The x-intercept is $\frac{^{-}1}{5}$, and the y-intercept is $\frac{3}{5}$.

Answer _____

3. The following points lie on the line of a function: (1, 4) and ($^{-}2$, 1). The y-intercept of the same function is closer to (1, 4) than ($^{-}2$, 1). What is the slope of the function?

Answer _____

4. The points where the line of a function crosses the x- and y-axes are (3, 0) and (0, 3). The coordinates of the intercepts are in reverse order. What is the slope of the function?

Answer _____

5. The line given by $3x - 3y = 12$ does not have any points in the second quadrant. What is the slope of the line given by $3x - 3y = 12$?

Answer _____

6. Find the slope of the line given by $10 - 2y = 3x$. The y-intercept of the line is 5, and the point (2, 2) lies on the line of the function.

Answer _____

UNIT 5 Review

Identify the domain and the range for each relation. Then tell whether the relation is a function.

a

1. $\{(^-6, 4), (0, 6), (2, 0)\}$

Domain: _____

Range: _____

Function? _____

b

$\{(4, ^-1), (^-1, 3), (^-4, 1), (^-4, 5)\}$

Domain: _____

Range: _____

Function? _____

Solve each equation using the given value of x or y. Write the ordered pair which makes the equation true.

a

2. $2x + y = 4$ when $x = 3$

Ordered pair _____

b

$5x - 2y = 2$ when $x = 2$

Ordered pair _____

c

$x + y = ^-2$ when $y = 3$

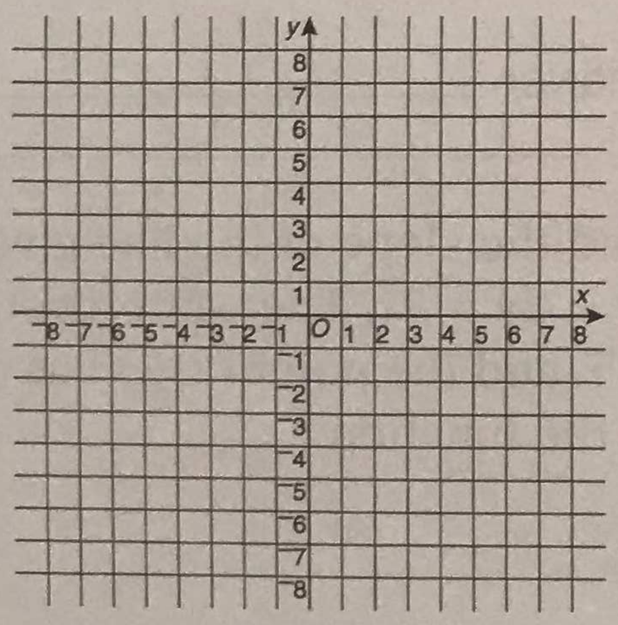
Ordered pair _____

Make a table of 3 solutions. Graph each solution. Draw a straight line through the points.

a

3. $2x + y = 8$

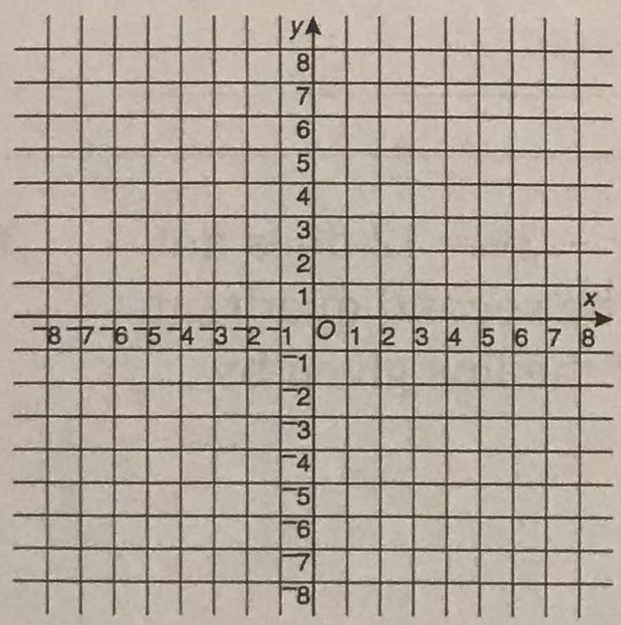
x	y



b

$x + 3y = 9$

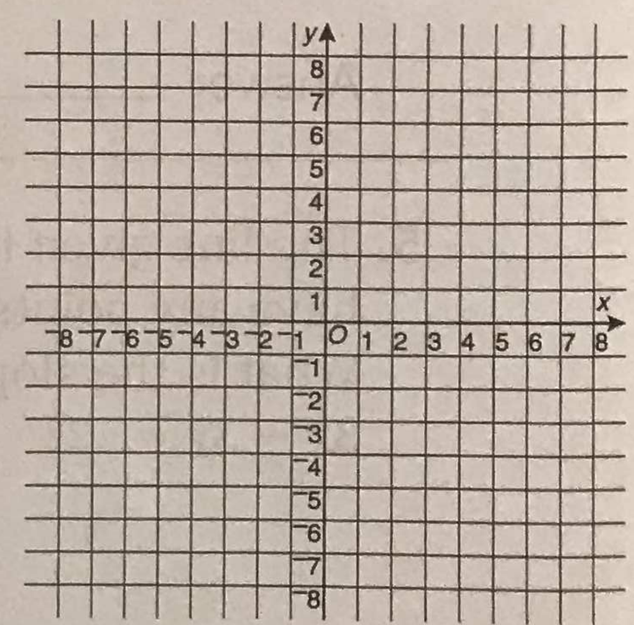
x	y



c

$2x - 2y = 16$

x	y



Find the slope of the line that passes through the given points.

a

4. $(^-3, 2), (1, 1)$

b

$(1, ^-2), (4, 1)$

c

$(2, 1), (6, ^-3)$

UNIT 5 Cumulative Review

Evaluate each expression.

a	b	c	d
1. $7 - (2 \times 22)$	$2 \cdot 15 \div 3$	$\frac{42 - 2(6)}{5}$	$\frac{38 + 18}{4 \times 2}$

Simplify.

a	b	c	d
2. $^-6z + {}^-4y + {}^-9z =$	$(^-7a)(^-7z) =$	$^-3(^-13s - 10) =$	$\frac{15q}{^-3} \cdot \frac{2q}{2} =$
3. $1.8 \times 10^{-2} =$	$(w^3 + 3s)(st - 7) =$	$8.2 \times 10^6 =$	$(mn^4s^3p^2)^4 =$

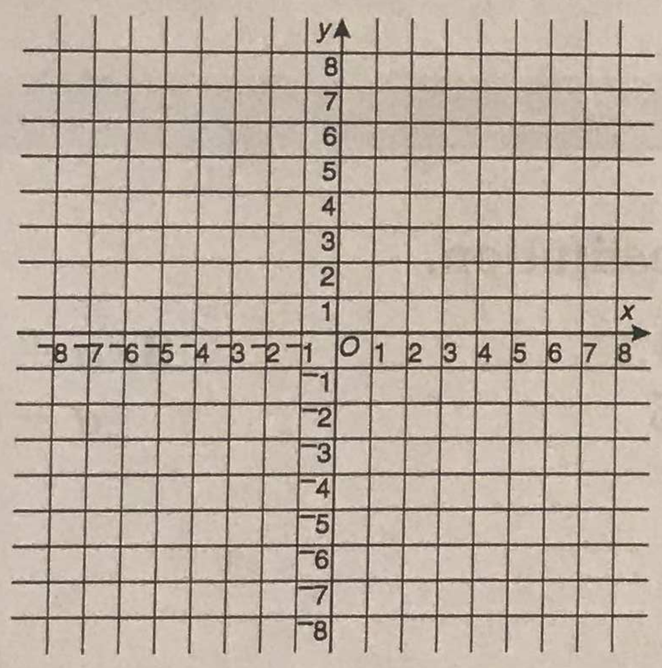
Solve.

a	b	c
4. $\lvert ^-25 \rvert$	$\frac{a}{3} = {}^-18$	$3g - 9 = 3(2g + 5)$
5. $^-9x = 90$	$(4x^2 + 6x + 9)(2 - x) =$	$2k + 3m\overline{)6k^2 + km - 12m^2}$

Graph each equation using the slope-intercept form.

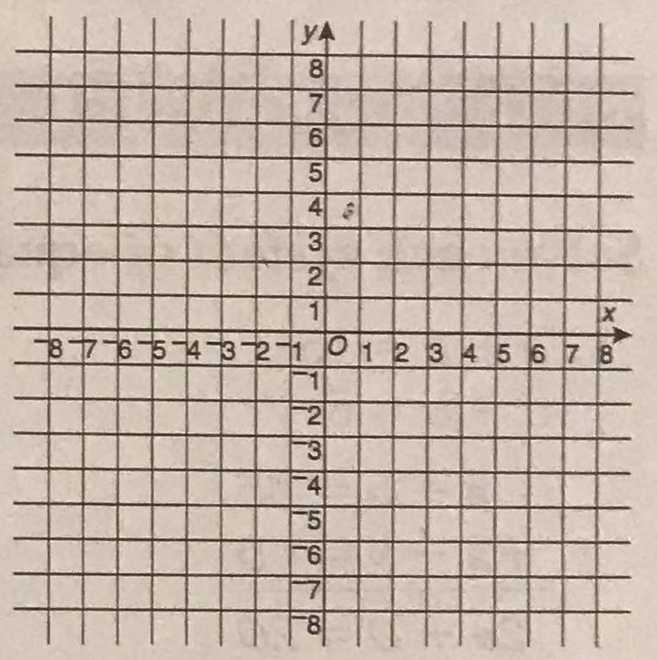
a

6. $x - 2y = 4$



b

$y = {}^-2x + 3$



Solve.

7. If three times a number is subtracted from 15, the result will be equal to the number decreased by 21. Find the number.

Answer _____

8. Use the formula $C = (F - 32) \cdot \frac{5}{9}$ to find C when F is 104°.

Answer _____