

Simplifying and Solving Equations (A)

Name: _____

Date: _____

Determine the value of the unknown in each equation.

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

11. $2(3x - 2) + 9 = -5x$

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

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

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

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

4. $-7 + 4c = 7c + 6$

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

5. $5(1 + s) = -9s + 6$

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

6. $3 + v = 2(2v - 1)$

16. $5a - 2 = -9a + 8$

7. $-2 - 4w = 7w - 8$

17. $6t - 5 = -9t - 9$

8. $-6(1 - m) = 9 - 2m$

18. $-1 + 3f = -7 - 6f$

9. $-2q - 3 = -2(2q + 1)$

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

10. $6n + 7 = 2n + 5$

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. $-8c + 8 = 5c + 2$

11. $-3 + 8t = -1 + 5t$

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

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

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

13. $-6p = -2(4 - p) - 7$

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

14. $-2(2 + 3x) = -3(2 - 3x)$

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

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

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

16. $-9 - 6y = 2 + 2y$

7. $-6j + 6 = j + 3$

17. $-4(2r + 1) = -6 + r$

8. $2(f + 2) = 5 - 3f$

18. $-5 - k = -8 - 5k$

9. $1 + 5n = n + 8$

19. $9s - 7 = -4s + 7$

10. $-3(z + 2) = -9z + 1$

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. $8(b + 1) = -3(2 + b)$

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

2. $-3z - 1 = 1 - 7z$

12. $-2(n + 4) - 2 = 9n$

3. $w - 5 = 8w + 5$

13. $-8 + 6m = -6m + 8$

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

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

5. $6g + 5 = -2(1 + 2g)$

15. $-9j - 1 = 9j - 5$

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

16. $5s + 3 = -s - 4$

7. $-7q + 8 = -8 + 3q$

17. $-h = -3(3h + 1) + 1$

8. $-4p - 2 = 6p + 1$

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

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

19. $-7 - 5d = 7 - 9d$

10. $5k = -2(1 + 4k) - 7$

20. $-6y = -5(1 - y) - 5$

Simplifying and Solving Equations (C) Answers

Name: _____

Date: _____

Determine the value of the unknown in each equation.

1. $8(b + 1) = -3(2 + b)$

$$b = -1\frac{3}{11}$$

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

$$t = 6$$

2. $-3z - 1 = 1 - 7z$

$$z = \frac{1}{2}$$

12. $-2(n + 4) - 2 = 9n$

$$n = -\frac{10}{11}$$

3. $w - 5 = 8w + 5$

$$w = -1\frac{3}{7}$$

13. $-8 + 6m = -6m + 8$

$$m = 1\frac{1}{3}$$

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

$$f = -1\frac{1}{11}$$

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

$$x = -1$$

5. $6g + 5 = -2(1 + 2g)$

$$g = -\frac{7}{10}$$

15. $-9j - 1 = 9j - 5$

$$j = \frac{2}{9}$$

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

$$r = -2$$

16. $5s + 3 = -s - 4$

$$s = -1\frac{1}{6}$$

7. $-7q + 8 = -8 + 3q$

$$q = 1\frac{3}{5}$$

17. $-h = -3(3h + 1) + 1$

$$h = -\frac{1}{4}$$

8. $-4p - 2 = 6p + 1$

$$p = -\frac{3}{10}$$

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

$$v = 1$$

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

$$a = 1$$

19. $-7 - 5d = 7 - 9d$

$$d = 3\frac{1}{2}$$

10. $5k = -2(1 + 4k) - 7$

$$k = -\frac{9}{13}$$

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

11. $-4 - h = h - 9$

2. $7y - 2 = -4y + 7$

12. $-5 + 3z = -6z + 7$

3. $4a - 1 = -9a + 8$

13. $3(1 + p) - 2 = -p$

4. $1 + m = 4 - 4m$

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

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

15. $-3 - 2v = -5 + 9v$

6. $2f - 8 = -5 - 9f$

16. $4 - g = 2 + 9g$

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

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

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

18. $8 + 9x = 7(x - 1)$

9. $-4r - 3 = 4 + 9r$

19. $1 + n = 9n - 1$

10. $7 + 3b = 5b + 8$

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.

$$y - 2x = 5$$

$$y = 5 + 2x$$

$$y = 2x + 5 \quad \text{slope-intercept form}$$

- **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.

$$\text{Let } x = 1.$$

$$y - 2x = 5$$

$$y - 2(1) = 5$$

$$y - 2 = 5$$

$$y = 7$$

$$\text{Let } x = 2.$$

$$y - 2x = 5$$

$$y - 2(2) = 5$$

$$y - 4 = 5$$

$$y = 9$$

(1, 7) and (2, 9)

$$\text{slope} = \frac{9 - 7}{2 - 1}$$

$$= \frac{2}{1}, \text{ or } 2$$

The answer is reasonable.

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	b
1. $\{(-6, 4), (0, 6), (2, 0)\}$	$\{(4, -1), (-1, 3), (-4, 1), (-4, 5)\}$
Domain: _____	Domain: _____
Range: _____	Range: _____
Function? _____	Function? _____

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

a	b	c
2. $2x + y = 4$ when $x = 3$	$5x - 2y = 2$ when $x = 2$	$x + y = -2$ when $y = 3$
Ordered pair _____	Ordered pair _____	Ordered pair _____

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

a	b	c																								
3. $2x + y = 8$	$x + 3y = 9$	$2x - 2y = 16$																								
<table border="1" style="margin: auto;"> <tr><th>x</th><th>y</th></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>	x	y							<table border="1" style="margin: auto;"> <tr><th>x</th><th>y</th></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>	x	y							<table border="1" style="margin: auto;"> <tr><th>x</th><th>y</th></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>	x	y						
x	y																									
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Find the slope of the line that passes through the given points.

a	b	c
4. $(-3, 2), (1, 1)$	$(1, -2), (4, 1)$	$(2, 1), (6, -3)$

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.

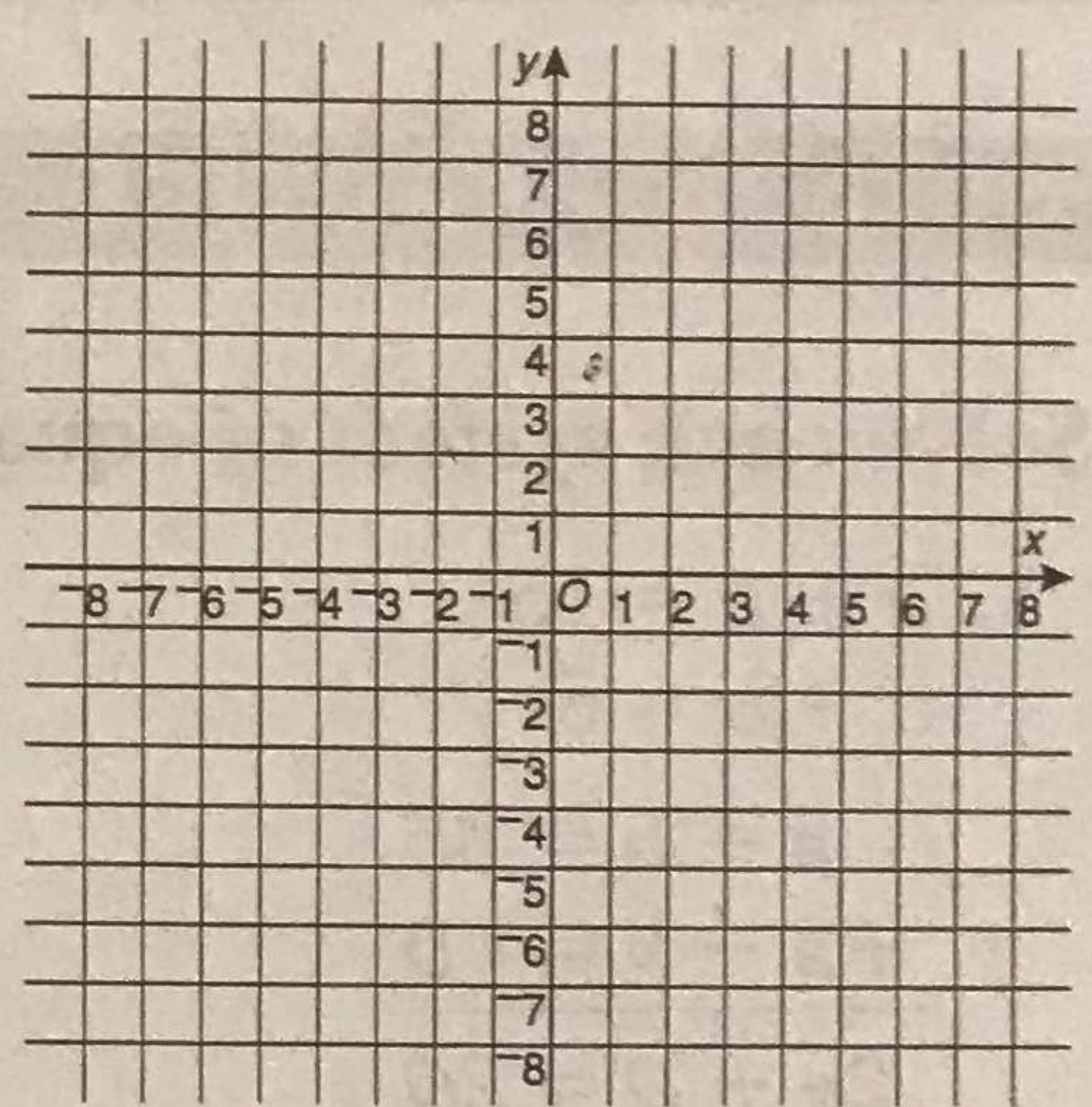
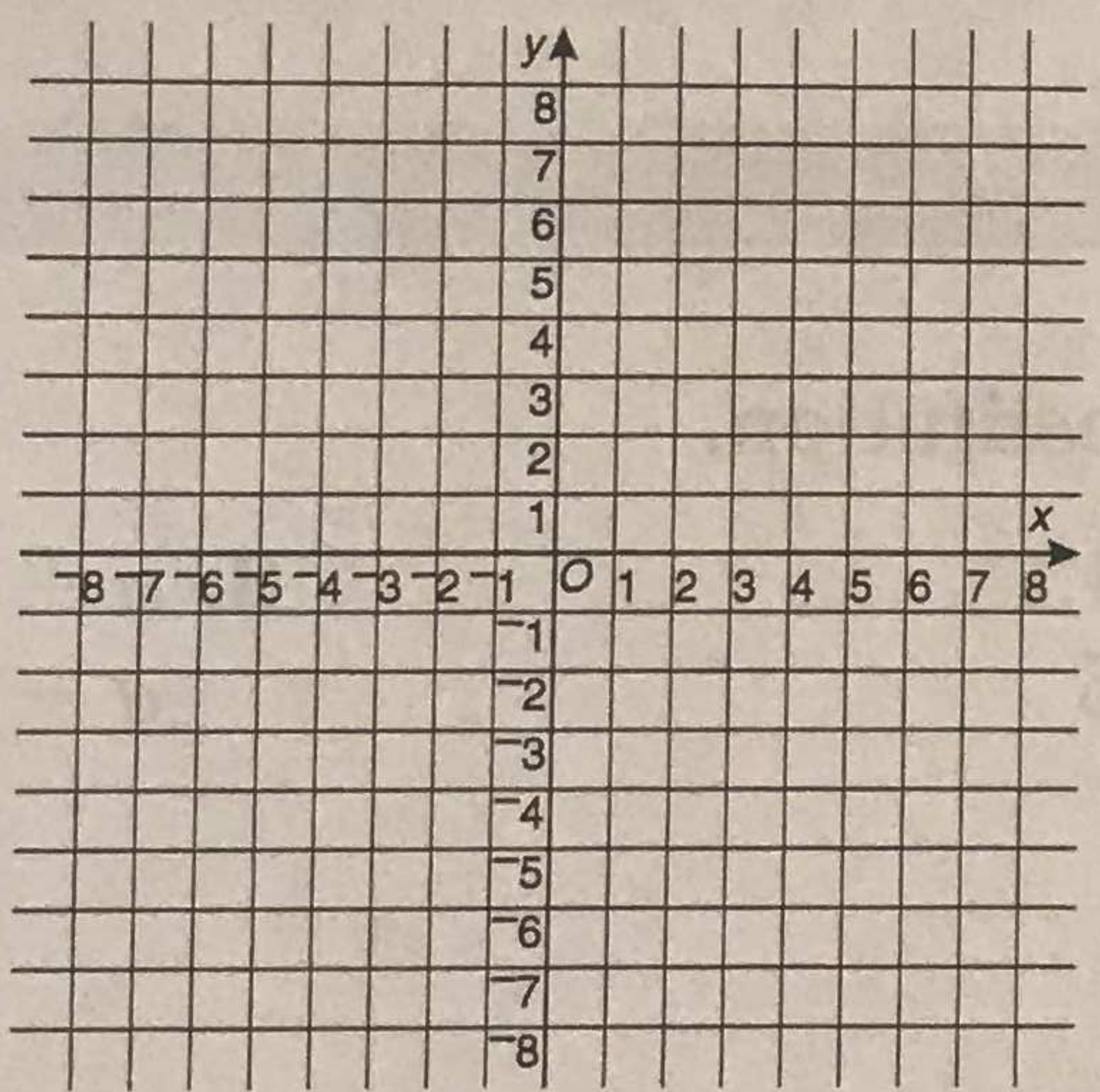
a	b	c	d
2. $-6z + -4y + -9z =$	$(-7a)(-7z) =$	$-3(-13s - 10) =$	$\frac{15q}{-3} \cdot \frac{2q}{2} =$
3. $1.8 \times 10^{-2} =$	$(w^3 + 3s)(st - 7) =$	$8.2 \times 10^6 =$	$(mn^4s^3p^2)^4 =$

Solve.

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

Graph each equation using the slope-intercept form.

6. $x - 2y = 4$
 $y = -2x + 3$



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.

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

Answer _____

Answer _____