

1. The additive inverse of $\frac{3}{5}$ is _____.

A. $\frac{3}{5}$

B. $1/(\frac{3}{5})$

C. $-\frac{3}{5}$

D. $-1/(\frac{3}{5})$

2. Calculate the difference using only pencil and paper. $\frac{17}{7} - \frac{4}{3}$

A. $\frac{23}{21}$

B. $\frac{13}{4}$

C. $\frac{29}{84}$

D. $\frac{71}{84}$

E. $\frac{67}{42}$

F. $\frac{3}{7}$

G. $\frac{10}{7}$

H. $\frac{25}{42}$

3. Calculate the difference using only pencil and paper. $\frac{13}{11} - (-\frac{3}{16})$

A. $\frac{153}{176}$

B. $\frac{371}{528}$

C. $\frac{241}{176}$

D. $\frac{285}{176}$

E. $\frac{16}{27}$

F. $\frac{593}{176}$

G. $\frac{899}{528}$

H. $\frac{197}{176}$

4. Calculate the product using only pencil and paper. $\frac{3}{5} \cdot (-\frac{1}{9})$

A. $\frac{4}{15}$

B. $-\frac{1}{15}$

C. $-\frac{1}{5}$

D. $\frac{1}{45}$

E. $-\frac{2}{15}$

F. $\frac{1}{20}$

G. $\frac{1}{30}$

H. $\frac{2}{45}$

5. Calculate the value of the expression. $7 - 8 \cdot 3 + 4$

A. -26

B. -49

C. 1

D. -21

E. -52

F. -13

6. The terms in a sequence $\{a_1, a_2, a_3, a_4, \dots\}$ can be computed from the formula $a_n = -3n + 8$. Calculate the 8th term of this sequence.

A. -21

B. -16

C. -7

D. -11

E. -19

F. -12

G. -13

H. -18

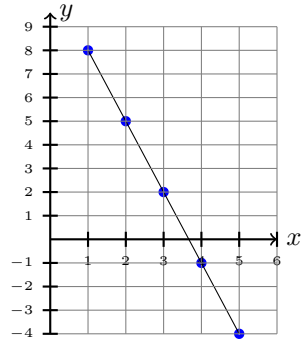
7. Consider the sequence: 8, 5, 2, -1, -4.

Which of the following represents the sequence as a table of x - y values?

A. $a(1) = 8, a(2) = 5, a(3) = 2, a(4) = -1, a(5) = -4$

B. $b_1 = 8, b_2 = 5, b_3 = 2, b_4 = -1, b_5 = -4$

C.



D.

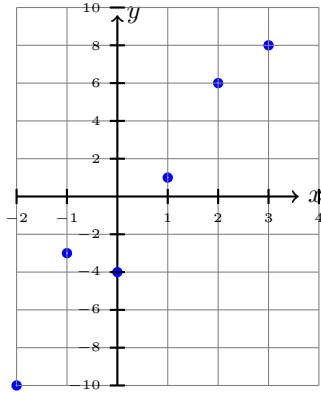
x	y
1	8
2	5
3	2
4	-1
5	-4

E. $(1,8), (2,5), (3,2), (4,-1), (5,-4)$

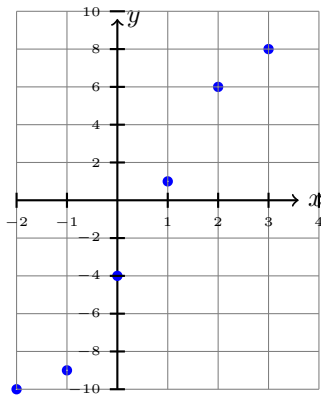
8. Draw a scatter diagram for the data set in the table below.

x	-2	-1	0	1	2	3
y	-10	-9	-4	1	6	8

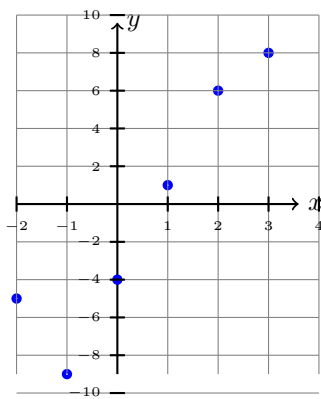
A.



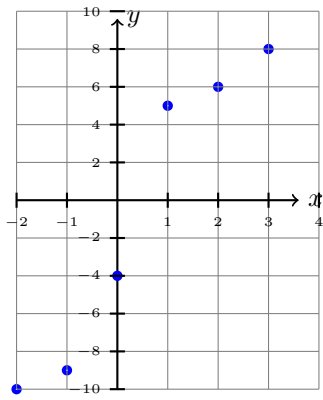
B.



C.



D.



9. Use the linear function $f(x) = -2x + 4$ to complete this table

x	$f(x)$
-2	
-1	
0	
1	
2	

A.

x	$f(x)$
-2	8
-1	7
0	4
1	2
2	0

B.

x	$f(x)$
-2	8
-1	6
0	4
1	2
2	-2

C.

x	$f(x)$
-2	8
-1	6
0	4
1	2
2	0

D.

x	$f(x)$
-2	5
-1	6
0	4
1	2
2	0

E.

x	$f(x)$
-2	8
-1	6
0	4
1	5
2	0

F.

x	$f(x)$
-2	8
-1	6
0	6
1	2
2	0

10. A roll of wire 600 ft long has 8 pieces each of length x cut from it. Write a function $f(x)$ that models the length of wire remaining on the roll and evaluate and interpret $f(15)$.

A. $f(15) = 480$. This means that 480 ft of wire will remain after cutting off 15 pieces having length 8 ft.

B. $f(15) = 380$. This means that 380 ft of wire will remain after cutting off 8 pieces having length 15 ft.

C. $f(15) = 380$. This means that 380 ft of wire will remain after cutting off 15 pieces having length 8 ft.

D. $f(15) = 780$. This means that 780 ft of wire will remain after cutting off 8 pieces having length 15 ft.

E. $f(15) = 880$. This means that 880 ft of wire will remain after cutting off 8 pieces having length 15 ft.

F. $f(15) = 880$. This means that 880 ft of wire will remain after cutting off 15 pieces having length 8 ft.

G. $f(15) = 780$. This means that 780 ft of wire will remain after cutting off 15 pieces having length 8 ft.

H. $f(15) = 480$. This means that 480 ft of wire will remain after cutting off 8 pieces having length 15 ft.

11. Solve the system of linear equations $\begin{cases} y = 2x + 3 \\ y = 3x + 2 \end{cases}$ by graphing each equation on the same coordinate system and determining the point of intersection. Check the coordinates of this point in both of the linear equations.

A. $(-1, 3)$.

B. $(1, 4)$.

C. $(3, 7)$.

D. $(-2, 2)$.

E. $(1, 5)$.

F. $(3, 6)$.

x	y
-5	-7
-4	-6
-3	-5
-2	-4
-1	-3
0	-2
1	-1
2	0
3	1
4	2
5	3

12. Use the table of a linear equation $y = mx + b$ to find its x and y -intercepts.

- A. The x -intercept is $(-2, 2)$ and the y -intercept is $(2, -2)$.
- B. The x -intercept is $(0, 2)$ and the y -intercept is $(-2, 0)$.
- C. The x -intercept is $(-2, 0)$ and the y -intercept is $(0, 2)$.
- D. The x -intercept is $(2, 0)$ and the y -intercept is $(0, -2)$.
- E. The x -intercept is $(0, -2)$ and the y -intercept is $(2, 0)$.
- F. The x -intercept is $(2, -2)$ and the y -intercept is $(-2, 2)$.

13. Solve the following linear equation $-5x + 3 = x - 2$.

A. $-\frac{5}{2}$

B. $\frac{10}{3}$

C. $\frac{5}{6}$

D. $\frac{5}{2}$

E. $\frac{5}{12}$

F. $-\frac{5}{6}$

G. $-\frac{5}{12}$

H. $-\frac{10}{3}$

14. Solve the following linear equation $-3x + 2 = -5(3x)$.

A. $-\frac{1}{18}$

B. $-\frac{1}{2}$

C. $-\frac{1}{6}$

D. $\frac{1}{2}$

E. $\frac{1}{18}$

F. $-\frac{1}{3}$

G. $\frac{2}{3}$

H. $\frac{1}{3}$

15. Solve the following linear equation $-2(1 - 3x) = 4(2)$.

A. $-\frac{5}{6}$

B. $-\frac{5}{12}$

C. 5

D. $-\frac{20}{3}$

E. $\frac{5}{3}$

F. $\frac{5}{9}$

G. $-\frac{5}{9}$

H. $-\frac{5}{3}$

16. Solve the following linear equation $-2x + 1 = -5x$.

A. $-\frac{2}{3}$

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

C. 1

D. $\frac{2}{3}$

E. -1

F. $-\frac{1}{9}$

G. $-\frac{1}{3}$

H. $\frac{1}{6}$

17. Solve $y = mx + b$ for the variable x (slope-intercept form of a line)

A. $x = y - m - b$

B. $x = y + m - b$

C. $x = \frac{y+m}{b}$

D. $x = y - m + b$

E. $x = \frac{y-b}{m}$

F. $x = \frac{y-m}{b}$

G. $x = y + m + b$

H. $x = \frac{y+b}{m}$

18. Solve $V = \frac{1}{3}\pi r^2 h$ for the variable h (volume of a cone)

A. $h = \frac{3V}{\pi r^2}$

B. $h = \frac{1}{3}V - \pi r^2$

C. $h = \frac{\pi r^2}{3V}$

D. $h = \frac{V}{3\pi r^2}$

E. $h = \frac{1}{3} - V - \pi r^2$

F. $h = 3V - \pi r^2$

G. $h = \frac{3\pi r^2}{V}$

H. $h = 3V\pi - r^2$

19. A mining company was able to extract 5 g of pure silver from 4 tons of ore. How many tons of ore would be needed to extract 6 g of silver? If necessary, round your answer to the nearest tenth.

- A. 5.8 tons of ore would be needed to extract 6 g of silver.
- B. 6.2 tons of ore would be needed to extract 6 g of silver.
- C. 4.8 tons of ore would be needed to extract 6 g of silver.
- D. 3.4 tons of ore would be needed to extract 6 g of silver.
- E. 2.9 tons of ore would be needed to extract 6 g of silver.
- F. 6.7 tons of ore would be needed to extract 6 g of silver.
- G. 3.8 tons of ore would be needed to extract 6 g of silver.
- H. 7.2 tons of ore would be needed to extract 6 g of silver.

20. A boilermaker is a cocktail that consists of adding a shot of whiskey to beer. If you add a 1 oz shot of whiskey which is 100 proof (50 percent alcohol by volume) to 12 oz of beer which is 4.5 percent alcohol, what percentage of alcohol will your boilermaker have? Round your answer to the nearest tenth of a percent.

- A. The boilermaker will contain 8.7 percent alcohol by volume.
- B. The boilermaker will contain 8.2 percent alcohol by volume.
- C. The boilermaker will contain 7.6 percent alcohol by volume.
- D. The boilermaker will contain 8.5 percent alcohol by volume.
- E. The boilermaker will contain 7.5 percent alcohol by volume.
- F. The boilermaker will contain 7 percent alcohol by volume.
- G. The boilermaker will contain 8.6 percent alcohol by volume.
- H. The boilermaker will contain 8 percent alcohol by volume.

Answers

1. C.
2. A.
3. C.
4. B.
5. F.
6. B.
7. D.
8. B.
9. C.
10. H.
11. E.
12. D.
13. C.
14. C.
15. E.
16. G.
17. E.
18. A.
19. C.
20. H.