1. A real number that is a terminating decimal is a(n) _____ number.

A. absolute

B. infinite

C. rational

D. irrational

2. Calculate the product using only pencil and paper. $\frac{18}{7} \cdot \frac{16}{5} \cdot \frac{1}{10}$

A. $\frac{751}{700}$

B. $\frac{144}{175}$

C. $\frac{782}{525}$

D. $\frac{669}{175}$

E. $\frac{607}{525}$

F. $\frac{463}{350}$

G. $\frac{1101}{700}$

H. $\frac{35}{22}$

3. Calculate the sum using only pencil and paper. $\frac{16}{13}+\frac{20}{11}+\frac{5}{4}$

A. $\frac{2459}{572}$

B. $\frac{579}{143}$

C. $\frac{722}{143}$

D. $\frac{3603}{572}$

E. $\frac{7949}{1716}$

F. $\frac{41}{28}$

G. $\frac{1887}{572}$

H. $\frac{1015}{286}$

4. How many quarter-acre lots can be made from $5\frac{1}{4}$ acres of land?

A. 21 lots

B. 30 lots

C. 23 lots

D. 29 lots

E. 31 lots

F. 22 lots

5. Calculate the value of the expressions. (i): $\sqrt{169} - \sqrt{144}$ and (ii): $\sqrt{169 - 144}$

A. (i): 5 (ii): 5

B. (i): 1 (ii): 1

C. (i): 1 (ii): 5

D. (i): 12 (ii): 13

E. (i): 13 (ii): 12

F. (i): 5 (ii): 1

6. Use the formula $m = \dfrac{y_2 - y_1}{x_2 - x_1}$ to calculate the slope m of a line passing through the points $(-4, 4)$ and $(5, -7)$

A. $-\frac{8}{9}$

B. $-\frac{31}{18}$

C. $-\frac{17}{9}$

D. $-\frac{25}{18}$

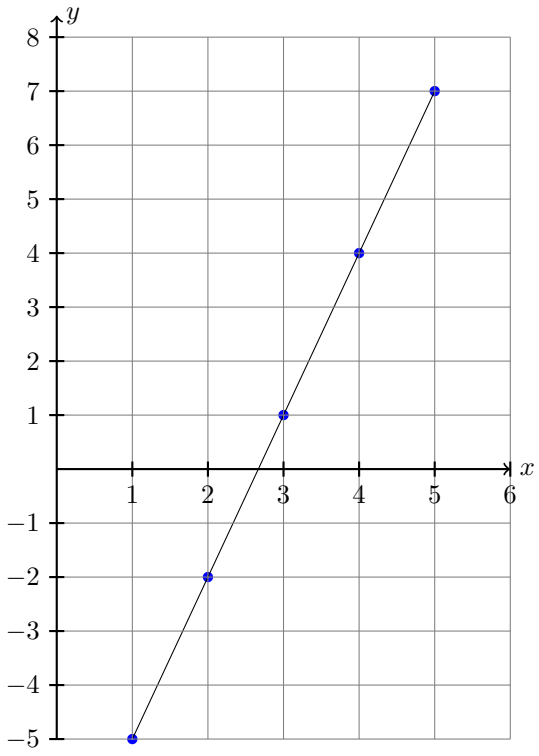
E. $-\frac{53}{36}$

F. $-\frac{11}{9}$

G. Undefined

H. $-\frac{14}{9}$

7. The following is the graph of a sequence a_1, a_2, a_3, a_4, a_5.



Using the graph, find the value of a_2.

A. $a_2 = 7$

B. $a_2 = 1$

C. $a_2 = -5$

D. $a_2 = 4$

E. $a_2 = -2$

8. The sequence 20, 17, 14, 11, 8, 5 is

A. an arithmetic sequence with common difference -5

B. an arithmetic sequence with common difference -1

C. an arithmetic sequence with common difference 1

D. an arithmetic sequence with common difference 3

E. not an arithmetic sequence

F. an arithmetic sequence with common difference -3

G. an arithmetic sequence with common difference 5

9. A restaurant automatically adds an 20% gratuity to the food and beverage total on all bills. Write a function f for the gratuity added to a food and beverage total of x dollars and use your function to evaluate and interpret $f(50)$.

A. $f(50) = 30$. This means that \$50 will be added to a bill totalling \$30.

B. $f(50) = 10$. This means that \$10 will be added to a bill totalling \$50.

C. $f(50) = 30$. This means that \$30 will be added to a bill totalling \$50.

D. $f(50) = 1000$. This means that \$50 will be added to a bill totalling \$1000.

E. $f(50) = 1000$. This means that \$1000 will be added to a bill totalling \$50.

F. $f(50) = 10$. This means that \$20 will be added to a bill totalling \$10.

10. The overhead cost for a company is \$500 per day. The cost of producing each item is \$30. The total cost of production is the sum of the overhead cost and the cost of producing each item. Write a function f that gives the total cost of producing x units per day, and evaluate and interpret $f(200)$.

A. $f(200) = 530$. This means it will cost \$530 to produce 200 units.

B. $f(200) = 720$. This means it will cost \$720 to produce 200 units.

C. $f(200) = 530$. This means it will cost \$200 to produce 530 units.

D. $f(200) = 4700$. This means it will cost \$200 to produce 4700 units.

E. $f(200) = 6500$. This means it will cost \$200 to produce 6500 units.

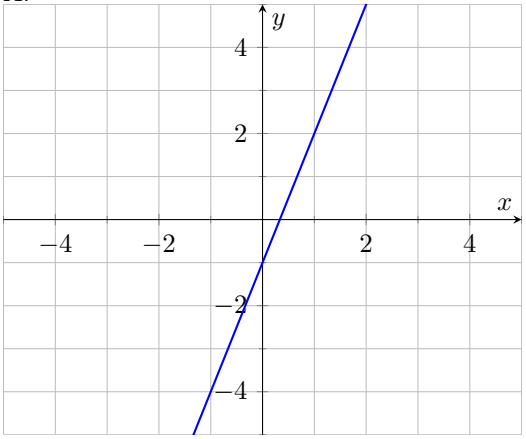
F. $f(200) = 4700$. This means it will cost \$4700 to produce 200 units.

G. $f(200) = 720$. This means it will cost \$200 to produce 720 units.

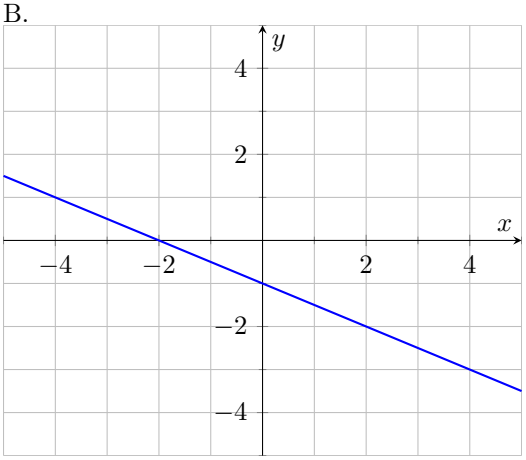
H. $f(200) = 6500$. This means it will cost \$6500 to produce 200 units.

11. Plot the y-intercept and one other point to graph the line $f(x) = -x - 1$. Select a third point to double-check your work.

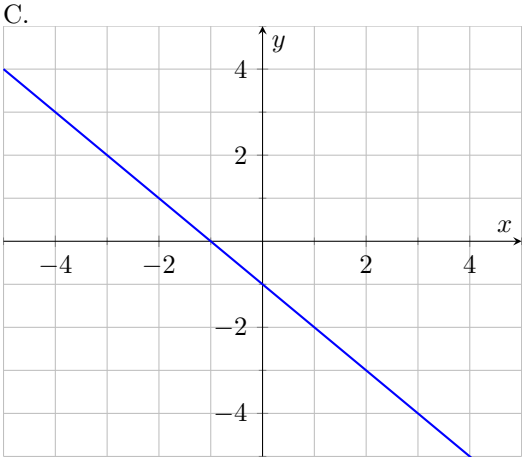
A.



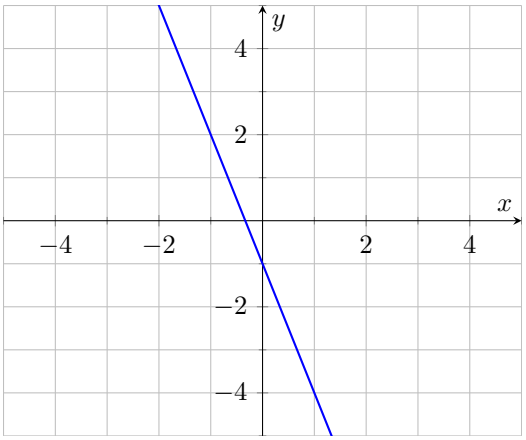
B.



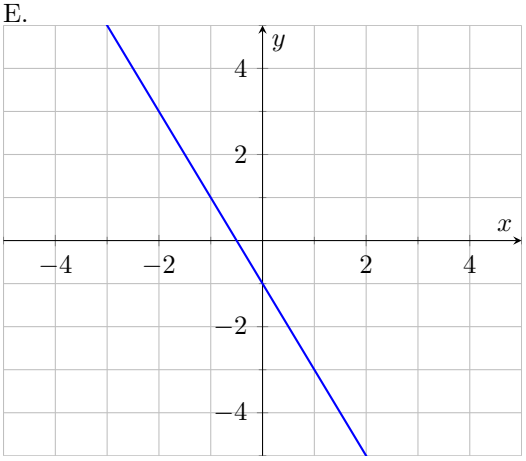
C.



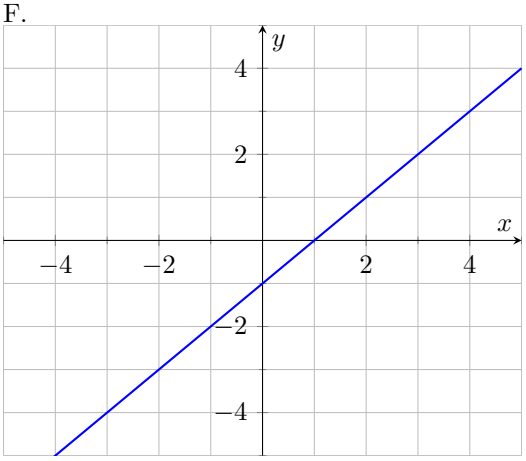
D.



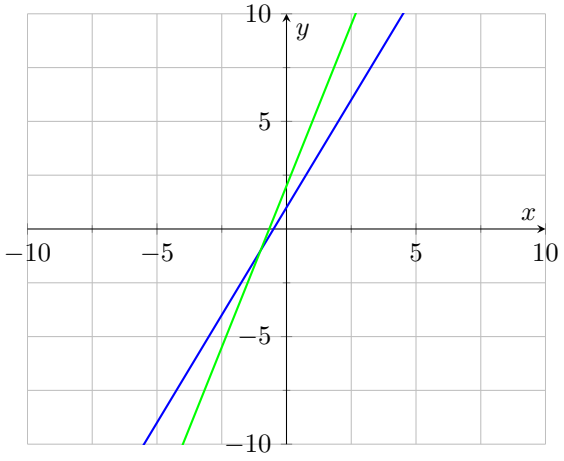
E.



F.



12. Determine the point of intersection of the two lines below.



A. The two graphs intersect at $(-4, -4)$.

B. The two graphs intersect at $(-1, -1)$.

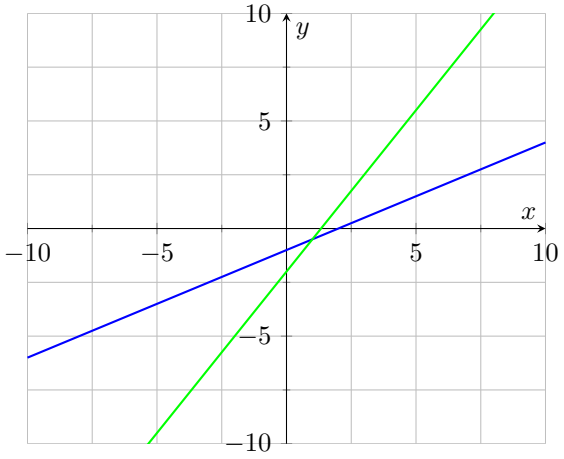
C. The two graphs intersect at $(2, 2)$.

D. The two graphs intersect at $(0, 0)$.

E. The two graphs intersect at $(1, 1)$.

F. The two graphs intersect at $(-2, -2)$.

13. Below is a graph of the system of linear equations $\left\{ \begin{array}{l} y = \frac{1}{2}x - 1 \\ y = \frac{3}{2}x - 2 \end{array} \right\}$. Use this graph to solve the linear equation $\frac{1}{2}x - 1 = \frac{3}{2}x - 2$.



A. $x = 4$

B. $x = 1$

C. $x = -1$

D. $x = 3$

E. $x = -2$

F. $x = 0$

14. Use the table

x	$x-2$	$2x-1$
-5	-7	-11
-4.5	-6.5	-10
-4	-6	-9
-3.5	-5.5	-8
-3	-5	-7
-2.5	-4.5	-6
-2	-4	-5
-1.5	-3.5	-4
-1	-3	-3
-0.5	-2.5	-2
0	-2	-1
0.5	-1.5	0
1	-1	1
1.5	-0.5	2
2	0	3
2.5	0.5	4
3	1	5
3.5	1.5	6
4	2	7
4.5	2.5	8
5	3	9

to solve the linear equation $x-2=2x-1$.

A. $x=0$

B. $x=2$

C. $x=-2$

D. $x=1$

E. $x=-3$

F. $x=-4$

G. $x=-1$

H. $x=-5$

15. Solve the following linear equation $-3x - \frac{2}{5} = 1$.

A. $-\frac{7}{15}$

B. $-\frac{7}{45}$

C. $\frac{7}{5}$

D. $-\frac{14}{15}$

E. $\frac{7}{60}$

F. $-\frac{7}{60}$

G. $\frac{28}{15}$

H. $\frac{14}{15}$

16. The perimeter of the rectangle shown below is 8 km. Find the value of y and include appropriate units in your answer.

$5y - 6$ km

$4y - 2$ km

A. $\frac{4}{9}$ km

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

C. $\frac{8}{3}$ km

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

E. $\frac{1}{3}$ km

F. $\frac{4}{15}$ km

G. 4 km

H. $\frac{20}{3}$ km

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

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

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

C. $m = y + x + b$

D. $m = y - x + b$

E. $m = y - x - b$

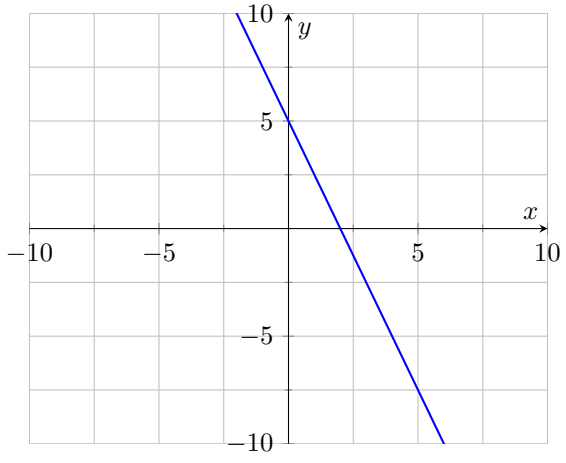
F. $m = y + x - b$

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

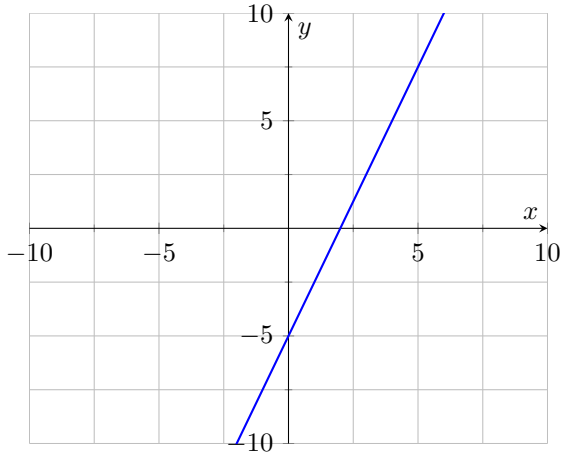
H. $m = \frac{y-x}{b}$

18. Find the x and y-intercept of the line $\frac{x}{2} + \frac{y}{5} = 1$ and use this information to plot a graph of this line.

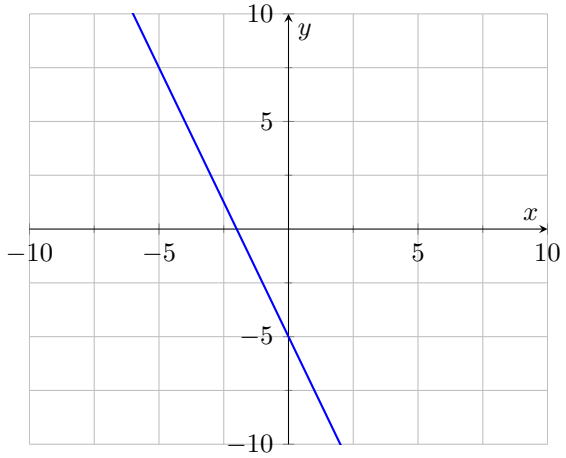
A.



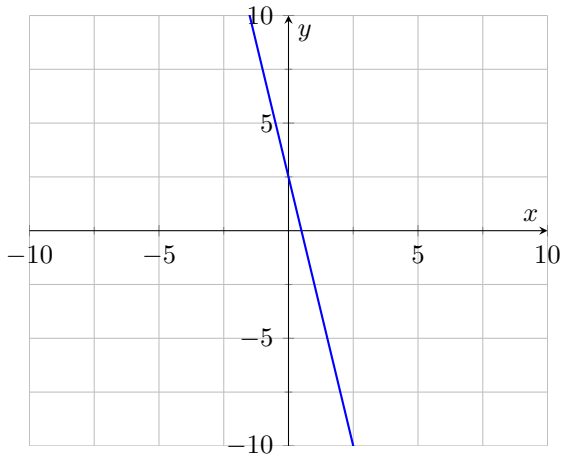
B.



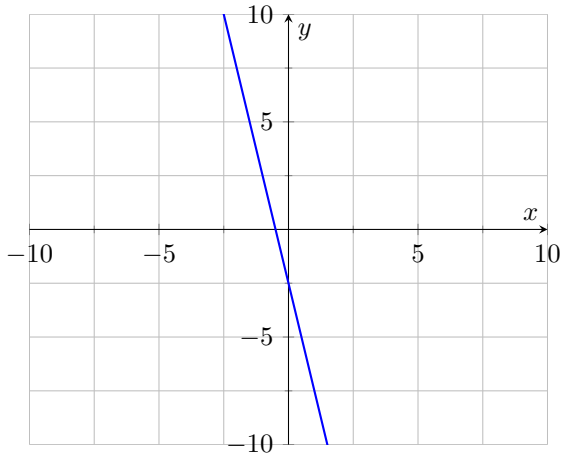
C.



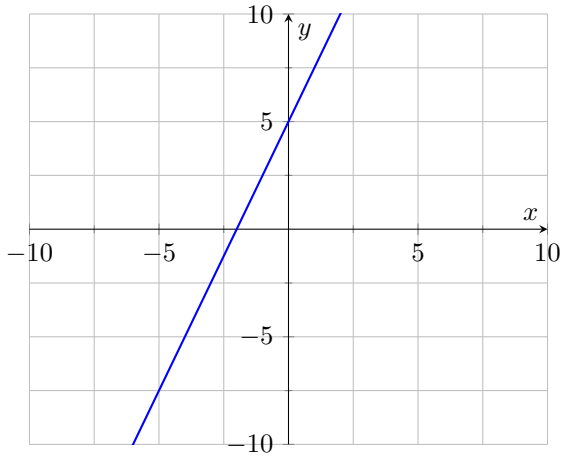
D.



E.



F.



19. A photograph with a length of 10 cm and a width of 9 cm needs to be enlarged. If the enlarged photograph has a width of 25 cm, what is the length of the enlarged photograph? If necessary, round your answer to the nearest tenth.

A. The enlarged photograph will have a length of 27.3 cm.

B. The enlarged photograph will have a length of 26.9 cm.

C. The enlarged photograph will have a length of 28.6 cm.

D. The enlarged photograph will have a length of 29.2 cm.

E. The enlarged photograph will have a length of 28.4 cm.

F. The enlarged photograph will have a length of 29.1 cm.

G. The enlarged photograph will have a length of 28.5 cm.

H. The enlarged photograph will have a length of 27.8 cm.

20. A retiree needs a yearly income of \$10100 from his \$180000 IRA to help fund his retirement. He has placed \$50000 of this account in a secure Treasury bond earning 7 percent yearly interest. Write an equation which models the rate of return r which he must earn on the rest of this investment in order to reach his \$10100 income goal?

A. The equation is $0.07 \cdot (10100) + r(180000 + 10100) = 50000$.

B. The equation is $7 \cdot (50000) + r(180000 + 50000) = 10100$.

C. The equation is $7 \cdot (50000) + r(180000 - 50000) = 10100$.

D. The equation is $0.07 \cdot (50000) + r(180000 + 50000) = 10100$.

E. The equation is $7 \cdot (180000) + r(180000 - 50000) = 10100$.

F. The equation is $7 \cdot (10100) + r(180000 + 10100) = 50000$.

G. The equation is $0.07 \cdot (50000) + r(180000 - 50000) = 10100$.

H. The equation is $0.07 \cdot (180000) + r(180000 - 50000) = 10100$.

Answers

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