THIRD SPACE LEARNING

8th Grade Indiana State Practice Math Test

Indiana Practice Test Grade 8

Grade 8

Questions

Name: ..... Class: .....

Date: ..... Score: .....

No Calculator For Questions 1 - 7

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1 Which two consecutive whole numbers is $\sqrt{75}$ between? Complete the inequality.

_____ $< \sqrt{75} <$ _____

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2 Which numbers are irrational? Select **all** the correct answers.

A. $\sqrt{25^2}$

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

C. 8π

D. $(\sqrt{2})^2$

E. $\sqrt{19}$

3 $\frac{7^e}{7^5} = \frac{1}{49}$

Which value for e makes the equation true?

Write your answer in the box.

Answer

4 Decide whether each statement is correct.

	True	False
$\frac{\pi}{3} < 0.98$	☐	☐
$\frac{1}{3} > \sqrt{\frac{1}{4}}$	☐	☐
$\frac{2}{\sqrt{196}} > \left(\frac{1}{2}\right)^3$	☐	☐

5 Which expressions have a value of $\frac{1}{64}$? Select all the correct answers.

A. $(\frac{2^2}{2^4})^3$

B. $\frac{2^{-4}}{2^{-8}}$

C. $2^{-8} + 2^2$

D. $(2^3)^{-2}$

E. $2^8(2^{-2})$

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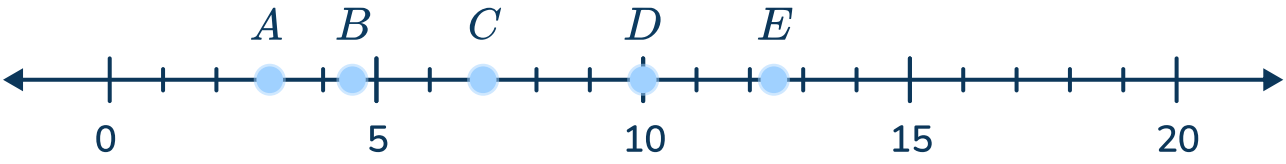
6 Which point is closest to $\sqrt{20}$?



7 Show the expanded form of the expression.

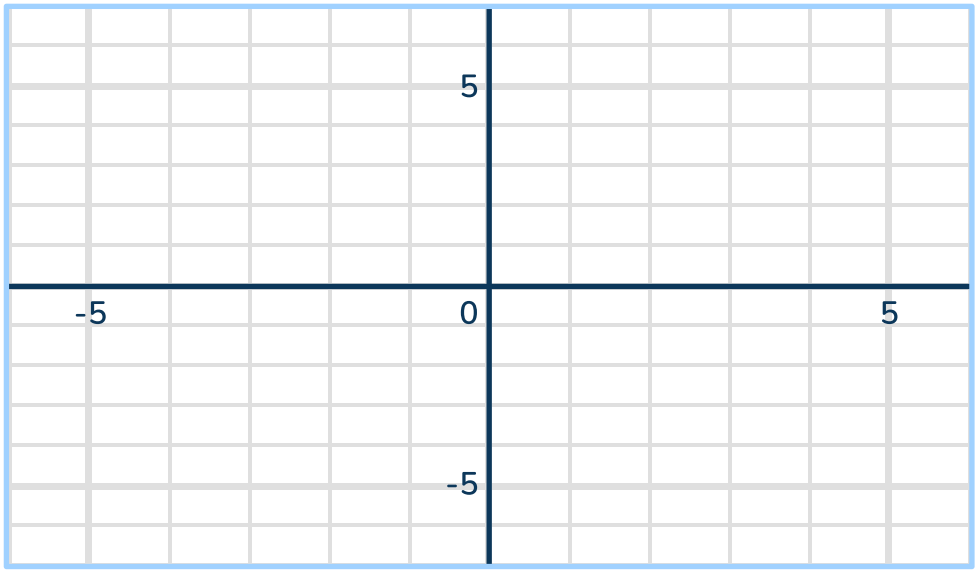
$6^3 \times 6^3$ _____

Write your answer in the box.

Answer

Calculator Can Be Used For Questions 8 - 36

8 △TGS with vertices T(0, 1), G(–2, 3), and S(–5, –2) will be rotated 180° about the origin. What will be the coordinates of S'?



Write your answer in the box.

Answer

9 Which equation represents the graph of a line on the coordinate plane that has an x-intercept of (2, 0) and a y-intercept of (0, –8)?

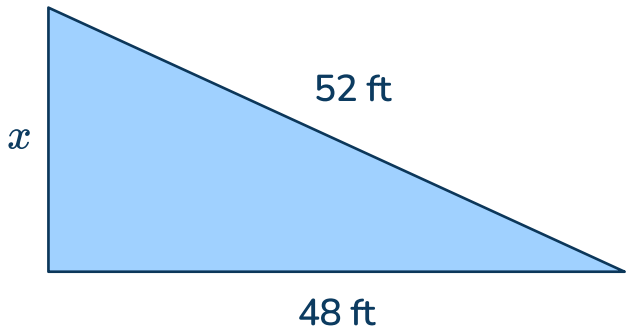
A. $y = 4x - 8$

B. $y = -4x + 8$

C. $y = -\frac{1}{4}x + 8$

D. $y = \frac{1}{4}x - 8$

10



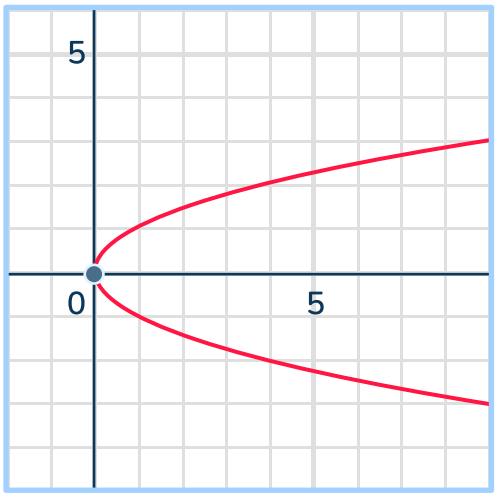
What is the value of x, in feet?

Write your answer in the box.

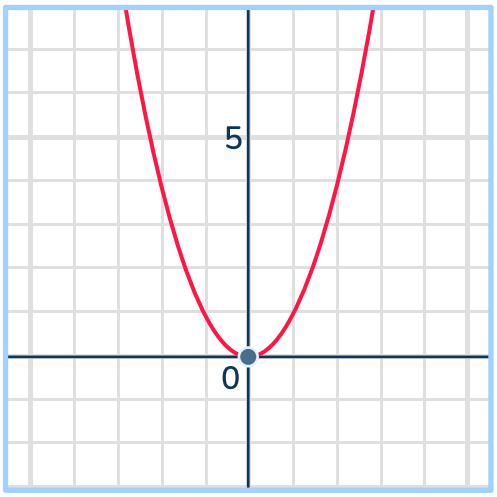
Answer

11 Which graph shows y to be a function of x? Select **all** the correct answers.

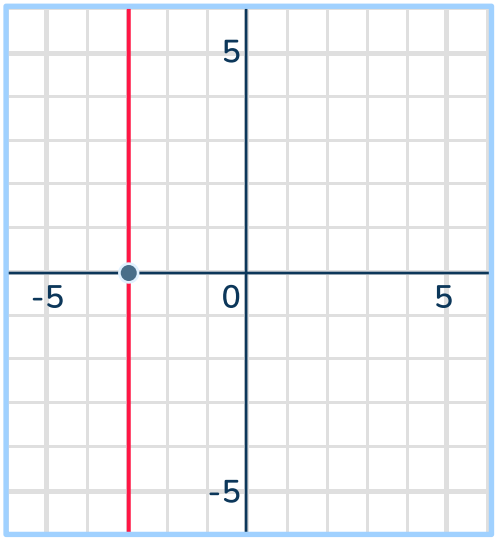
A.



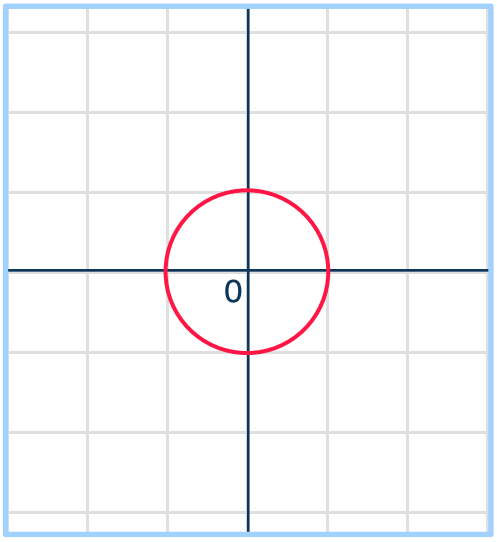
B.



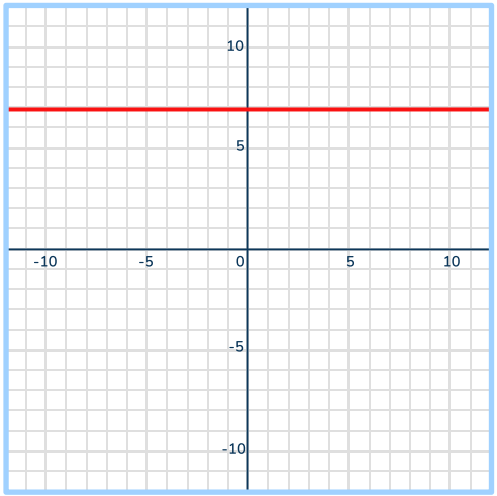
C.



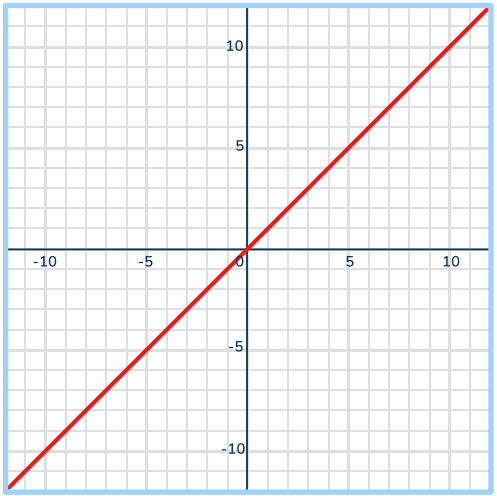
D.



E.



F.



12 Which table represents y as a nonlinear function of x?

A.

x	-3	-1	1	2
y	3	8	13	15.5

B.

x	0	2	3	4
y	$-\frac{1}{4}$	$1\frac{1}{4}$	2	$2\frac{3}{4}$

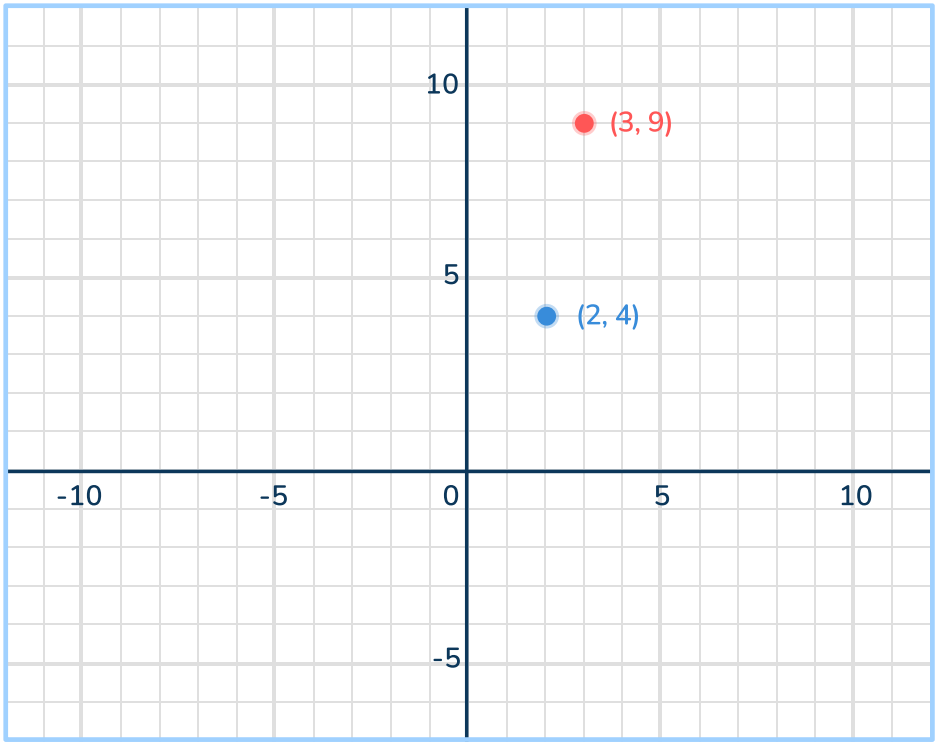
C.

x	2	3	5	8
y	-1	-3.5	-8.5	-11

D.

x	0	2	5	10
y	-5	-1	5	15

13



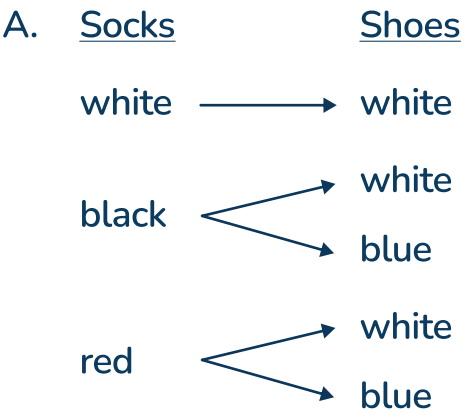
Dalia adds a coordinate to the graph above and says “Now the coordinates do not represent a function.”

Which coordinate did Dalia add?

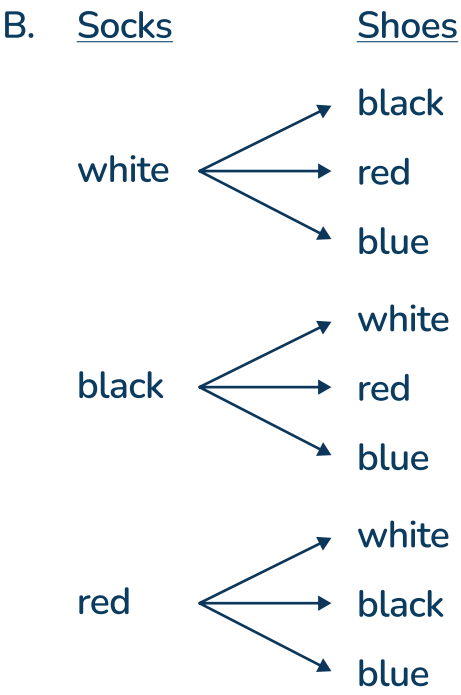
A. (0, –1)
B. (1,1)
C. (–2, –4)
D. (4, 5)
E. (3, –1)

14 There are 3 colors of socks and 2 colors of shoes.
Socks: White, black, red
Shoes: white, blue
Which is the correct sample space for all possible combinations of socks and shoes?

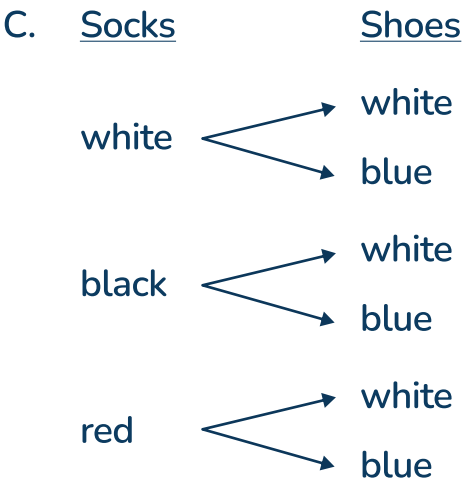
A.



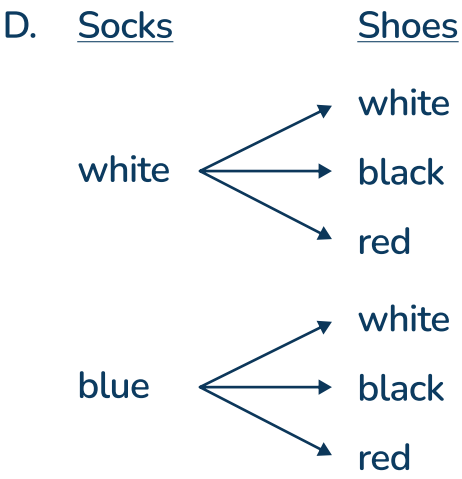
B.



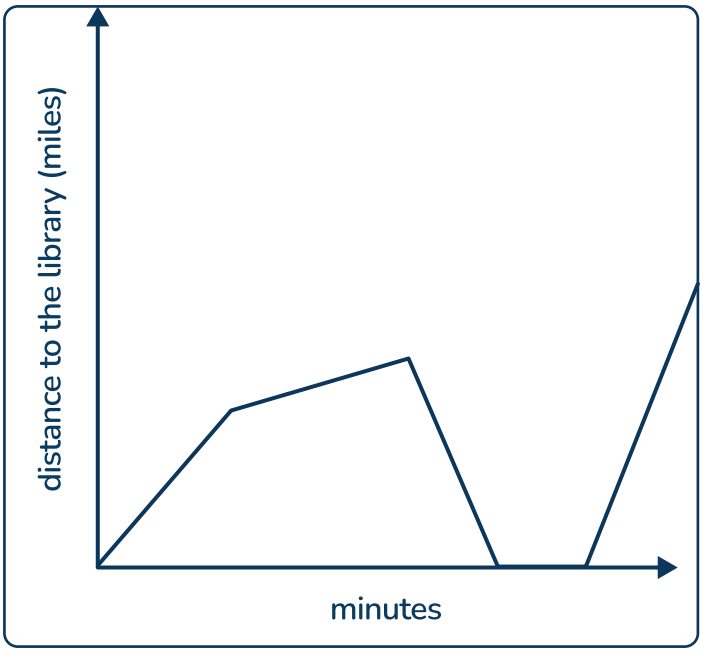
C.



D.



15 The graph shows Blake's bike ride.



Which statements about the function are true? Select **all** the correct answers.

A. During the trip, Blake arrived at the library, then immediately left.
B. Blake's bike trip started off at the library.
C. Blake was farthest away from the library at the end of the bike ride.
D. Blake got close to the library, but never arrived.
E. Blake's bike trip included four different roads.

16 The equation and table represent two rain barrels being drained. Each barrel begins completely full and drains at a constant rate. In each, y is the liters remaining after x minutes of draining.

Rain Barrel A

x	y
2	434
5	380
12	254

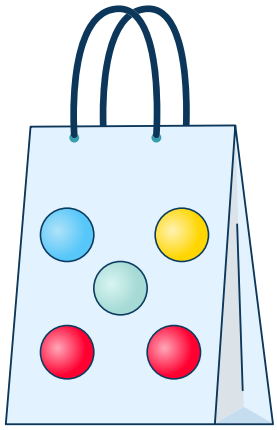
Rain Barrel B

$y = 430 - 22x$

Which statements about the functions are true? Select **all** the correct answers.

A. Rain Barrel A drains faster than Rain Barrel B.
B. Both Rain Barrel A and B have negative slopes.
C. Rain Barrel B will be empty before Rain Barrel A.
D. Both Rain Barrel A and B have negative y intercepts.
E. Rain Barrel A is larger than Rain Barrel B.

17 What is the probability of randomly picking a red marble, then a green marble out of the bag? Write the probability as a decimal.



Write your answer in the box.

Answer

Which terms describe the probability situation above? Select all the correct answers.

A. Simple event
B. Compound event
C. Dependent event
D. Independent event
E. Complementary event

18 Decide how many solutions each system has.

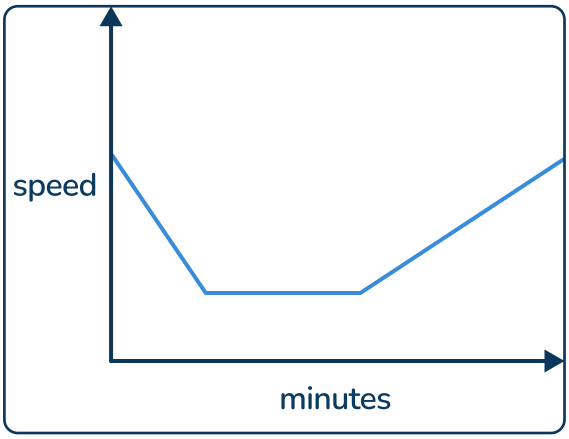
	No solution	One solution	Infinitely many solutions
$2x + 4 = -2x - 4$	☐	☐	☐
$x + 25 = x + 25$	☐	☐	☐
$23x - 14 = 23x + 14$	☐	☐	☐
$3x - 6 = 8x + 2$	☐	☐	☐

19 The speed of a car was measured for some minutes. The actions of the car were:

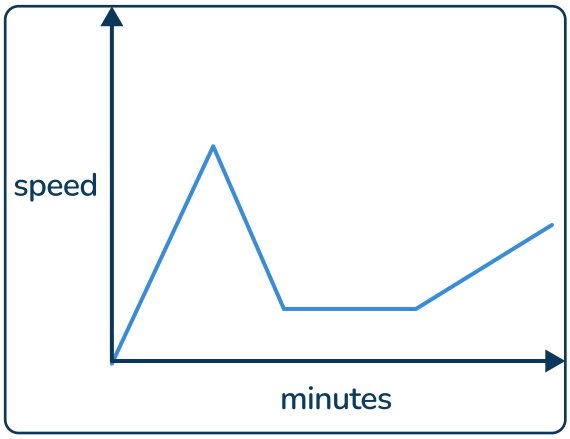
- Slowed down to park.
- Stayed parked for a few minutes.
- Began to slowly increase speed.
- Then drove at a constant speed.

Which is a graph of the function described above?

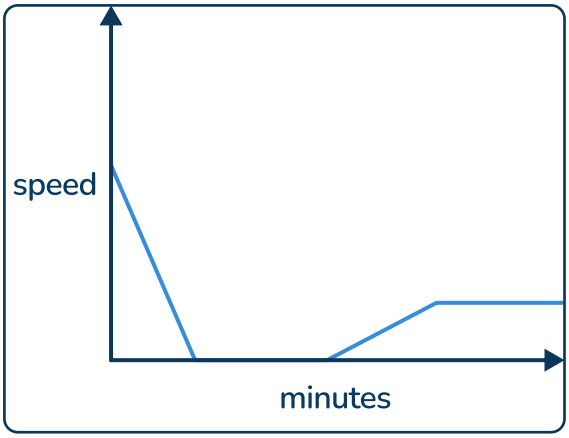
A.



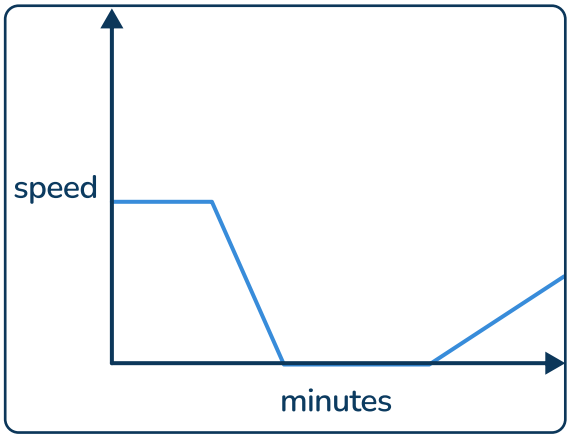
B.



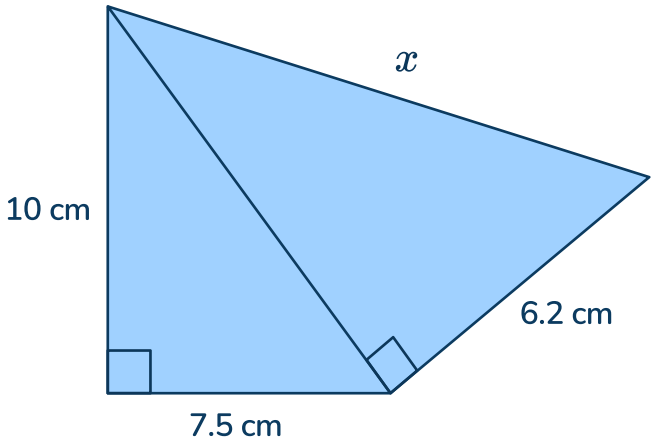
C.



D.



20 Solve for x. Round to the nearest tenth.



Write your answer in the box.

Answer

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21 What is the solution to the equation? Round to the nearest thousandth.

$-4.5(3x - 2) = 6.2x + 1.5$

Write your answer in the box.

Answer

22 Which set of coordinates represent a function? Select **all** the correct answers.

A. {(9, 0), (0, 9), (6, 5), (5, 6), (7, 7)}

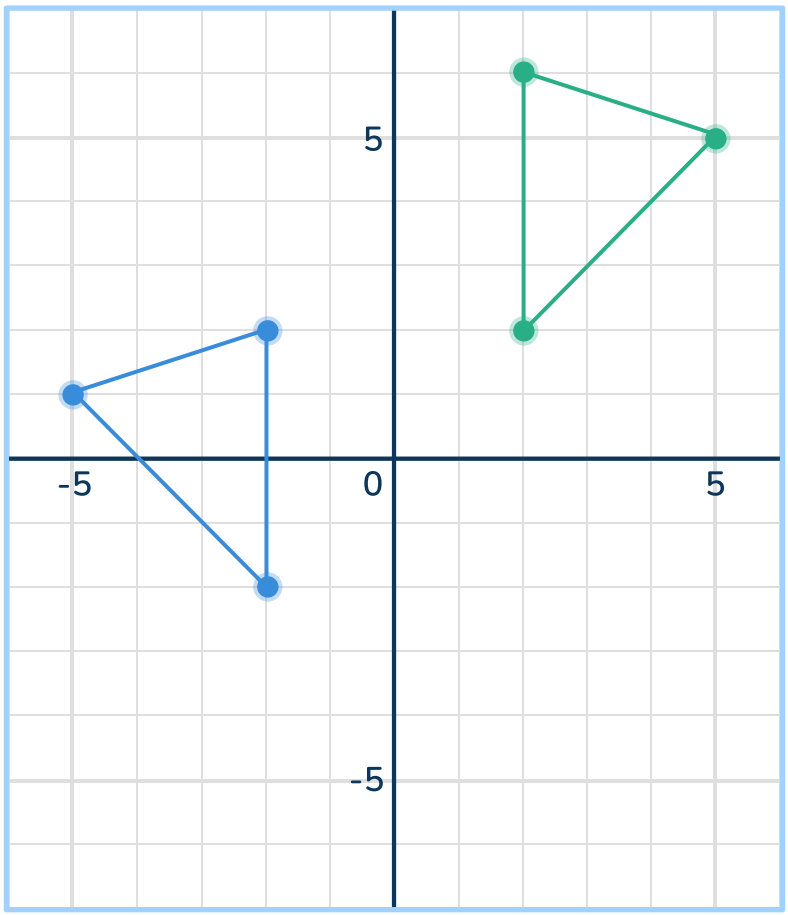
B. $\{(1, \frac{1}{2}), (2, \frac{1}{2}), (3, \frac{1}{2}), (4, \frac{1}{2}), (5, \frac{1}{3})\}$

C. {(6, 2), (–6, –2), (2, 8), (6, 10), (14, –5)}

D. $\{(0, 0), (7, 1), (-6\frac{2}{3}, 1), (112, -17), (-\frac{2}{3}, 44)\}$

E. {(3, 4), (5, 6), (7, 8), (9, 5), (8, 6), (7, 5)}

23 Which sequence of transformations maps the green triangle onto the blue triangle?



A. Reflection over the x-axis followed by a translation of 3 units left.

B. A rotation of 90° counterclockwise followed by a translation of 4 units up.

C. Translation of 3 units right followed by a reflection over the y-axis.

D. Reflection over the y-axis followed by a translation of 4 units down.

24 Liam runs a small tech repair shop. The table below shows the charges for the number of hours spent repairing devices.

Hours worked, x	Total amount of money charged, y
0	$35
2	$125
4	$215
6	$305

Write a linear equation, in the form $y = mx + b$, to represent the information in the table.

Write your answer in the box.

Answer

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25 What value for k will make the equation have no solution?

$4x - 26 + 2 = k(\frac{1}{3}x - 9)$

A. 12

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

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

D. -12

E. 0

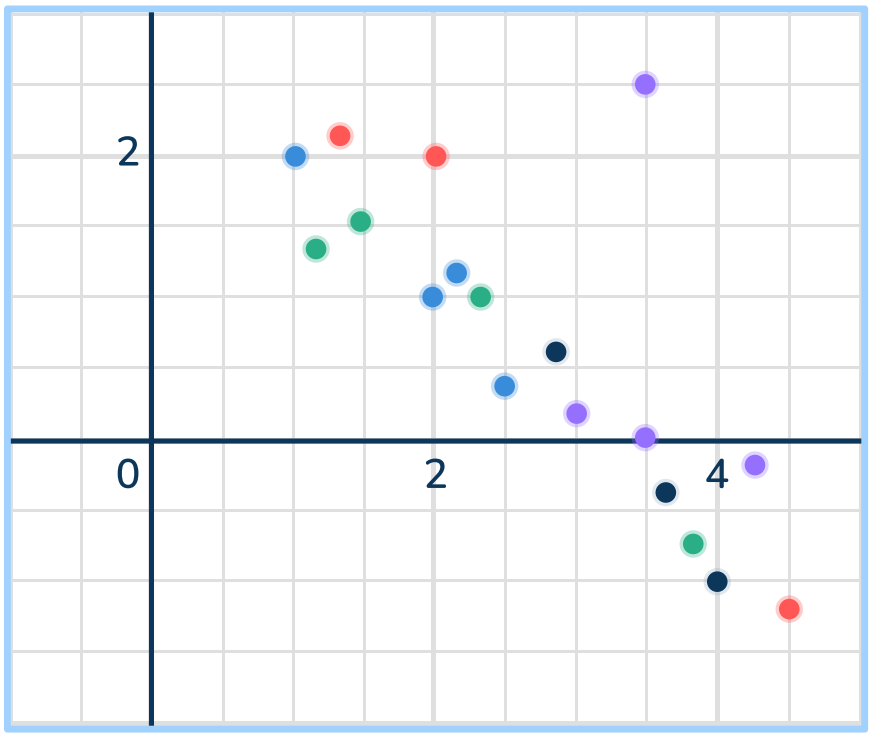
26 volume of pyramid = $\frac{1}{3}lwh$

The base area of a pyramid is 18 square feet. The volume of the pyramid is 57 cubic feet. What is the height of the pyramid, in feet?

Write your answer in the box.

Answer

27



Which statements about the scatter plot are true? Select **all** the correct answers.

A. In general, x and y have a negative association.
B. There appears to be 1 outlier.
C. The line of best fit will have a positive slope.
D. There is a cluster of data points around x =3.
E. The relationship between x and y looks linear.

28 volume of a sphere = $\frac{4}{3}\pi r^3$

A sphere has a diameter of 21 cm. What is the volume of the sphere? Round your answer to the nearest whole.

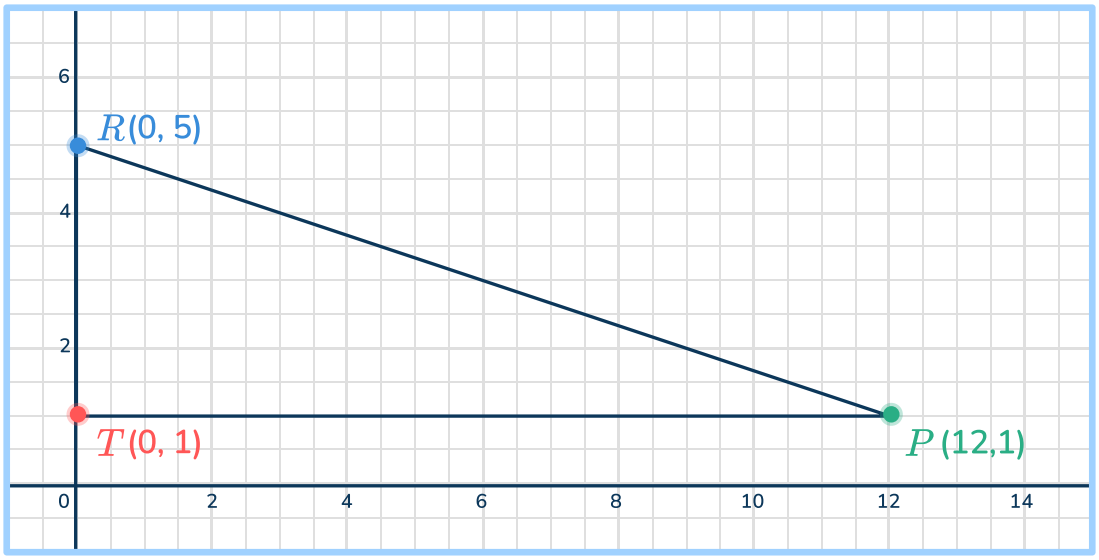
Write your answer in the box.

Answer

29 The equation 1,296 - 55$x = y$ models the distance (in miles) remaining in a road trip after driving for x hours. What is the meaning of the y-intercept?

A. The total distance of the road trip.
B. The speed of the vehicle in miles per hour.
C. The time it takes, in hours, to complete the road trip.
D. The distance driven after x hours.

30

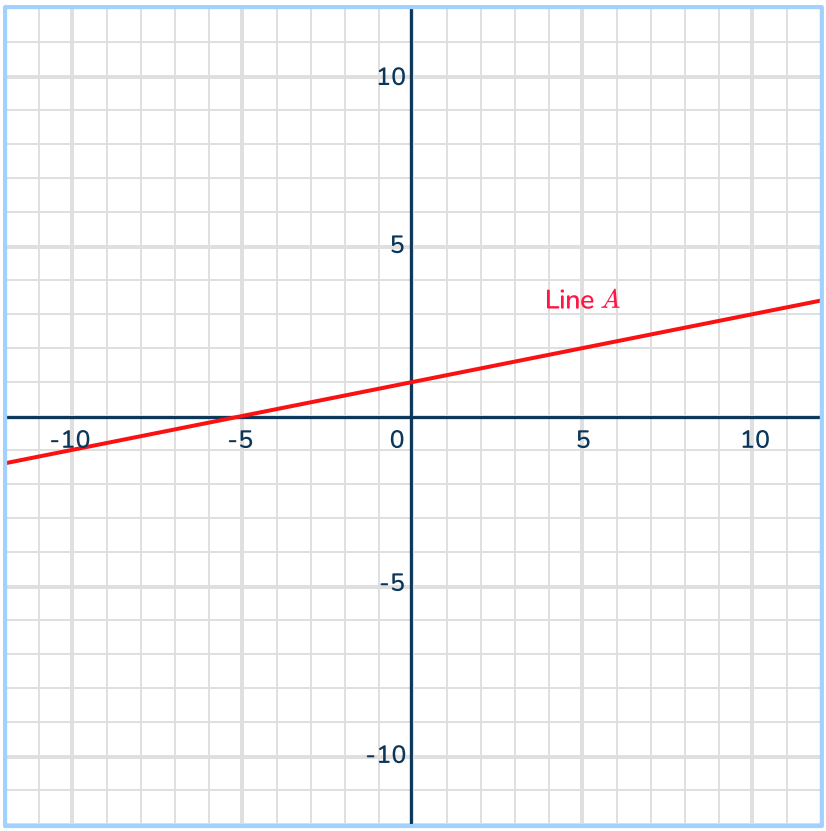


If the triangle is dilated by $\frac{3}{4}$, what is the distance from R' to P'? Round your answer to the nearest tenth.

Write your answer in the box.

Answer

31 The graph of Line A is shown.



Line A and Line B form a system of linear equations with no solution.

- On the graph, sketch a possible Line B.
- Label the coordinates for the y-intercept of Line B on the graph.
- Then, write the equation of Line B, in $y = mx + b$ form below.

Write your answer in the box.

Answer

32 Kamal spent $56 making bookmarks. He will sell the bookmarks for $6 each. Kamal wants to make a profit of at least $100. Create an inequality to represent how many bookmarks, b, Kamal needs to sell.

Write your answer in the box.

Answer

Solve the inequality for b.

Write your answer in the box.

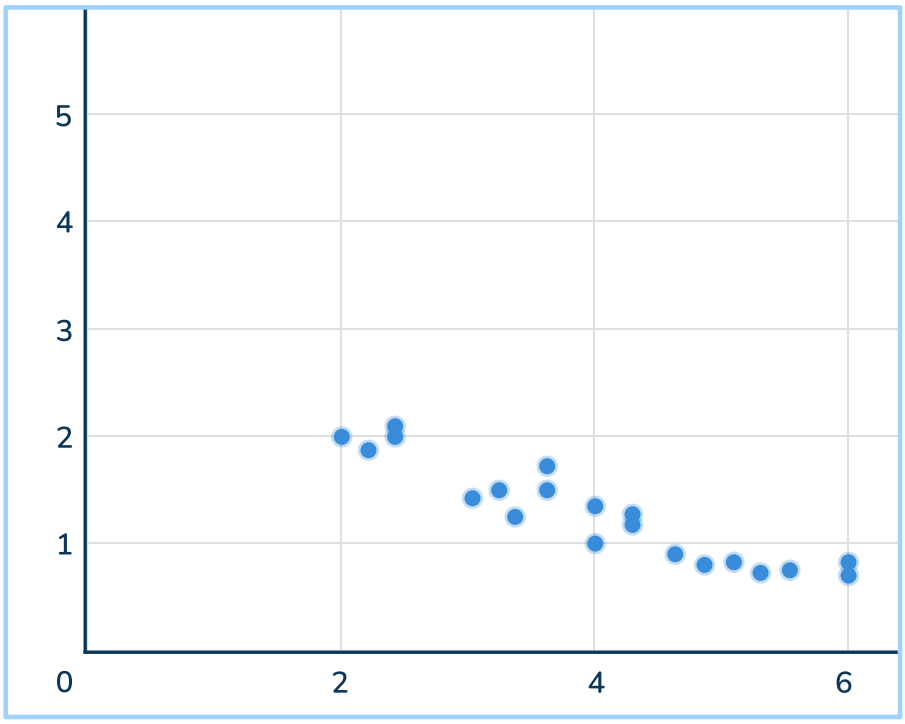
Answer

33 At a grocery store, apples cost $3.75 for each pound. Giselle buys $2\frac{5}{16}$ pounds of apples. She also pays a sales tax of 8.25%. How much does Giselle pay in total? Round to the nearest cent.

Write your answer in the box.

Answer

34 Which equation shows a line of best fit for the data?



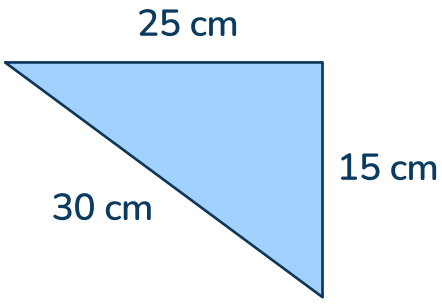
A. $2.75 - 0.6x = y$

B. $0.7x + 3 = y$

C. $-x + 2.8 = y$

D. $x - 2 = y$

35 Decide whether the triangle is acute, right or obtuse.



A. acute
B. right
C. obtuse
D. More information is needed

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36 Emma's science experiment tracks temperature changes.

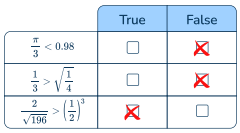
- The temperature doubles in the first two hours.
- Then it drops 1.5 degrees.
- Finally, it rises 3.1 degrees.
- The final temperature is 5.6 degrees.

What was the starting temperature?

Write your answer in the box.

Answer

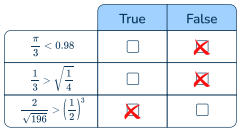
Answer Key - Multiple Choice

Item number	Correct answer	Standard(s)	DOK
1	$8 < \sqrt{75} < 9$	**8.NS.2**	DOK 2
2	C, E	**8.NS.1**	DOK 1
3	3	**8.NS.3**	DOK 2
4		**8.NS.2**	DOK 2
5	A, D	**8.NS.3**	DOK 2
6	B	**8.NS.2**	DOK 2
7	6 × 6 × 6 × 6 × 6 × 6	**8.NS.3**	DOK 1
8	(5,2)	**8.GM.1**	DOK 1
9	A	**8.AF.6**	DOK 2
10	20	**8.GM.3**	DOK 2
11	B, E, F	**8.AF.3**	DOK 1
12	C	**8.AF.5**	DOK 1
13	E	**8.AF.3**	DOK 1
14	C	**8.DSP.3**	DOK 1
15	B, C	**8.AF.4**	DOK 2
16	B, C, E	**8.AF.7**	DOK 2
17	0.1; B, C	**8.DSP.4**	DOK 2

Item number	Correct answer	Standard(s)	DOK
18		**8.AF.8**	DOK 1
19	C	**8.AF.4**	DOK 2
20	14	**8.GM.3**	DOK 2
21	0.381	**8.AF.1**	DOK 1
22	A, B, D	**8.AF.3**	DOK 1
23	D	**8.GM.1**	DOK 2
24	$y = 45x + 35$	**8.AF.6**	DOK 2
25	A	**8.AF.2**	DOK 2
26	9.5	**8.GM.2**	DOK 2
27	A, B, E	**8.DSP.1**	DOK 2
28	4,849	**8.GM.2**	DOK 2
29	A	**8.DSP.2**	DOK 2
30	9.5	**8.GM.1, 8.GM.3**	DOK 2
31	Answers will vary; the slope of Line be should be $\frac{1}{5}$ and the y-intercept given on the graph should make b in the equation.	**8.AF.8, 8.AF.6**	DOK 2
32	$6b - 56 \geq 100; 26$	**8.AF.1**	DOK 2

Item number	Correct answer	Standard(s)	DOK
33	$9.39	**8.NS.4**	DOK 2
34	A	**8.DSP.2**	DOK 2
35	C	**8.GM.3**	DOK 2
36	2	**8.NS.4**	DOK 2

ANSWERS SORTED BY REPORTING CATEGORY

Number Sense			
Item number	Correct answer	Standard(s)	DOK
1	$8 < \sqrt{75} < 9$	**8.NS.2(E)**	DOK 2
2	C, E	**8.NS.1**	DOK 1
3	3	**8.NS.3(E)**	DOK 2
4		**8.NS.2(E)**	DOK 2
5	A, D	**8.NS.3(E)**	DOK 2
6	B	**8.NS.2(E)**	DOK 2
7	6 × 6 × 6 × 6 × 6 × 6	**8.NS.3(E)**	DOK 1
33	$9.39	**8.NS.4(E)**	DOK 2
36	2	**8.NS.4(E)**	DOK 2

Algebra and Functions			
Item number	Correct answer	Standard(s)	DOK
9	A	**8.AF.6**	DOK 2
11	B, E, F	**8.AF.3**	DOK 1
12	C	**8.AF.5**	DOK 1
13	E	**8.AF.3**	DOK 1
15	B, C	**8.AF.4(E)**	DOK 2
16	B, C, E	**8.AF.7**	DOK 2
18		**8.AF.8(E)**	DOK 1
19	C	**8.AF.4(E)**	DOK 2
21	0.381	**8.AF.1(E)**	DOK 1
22	A, B, D	**8.AF.3**	DOK 1
24	$y = 45x + 35$	**8.AF.6(E)**	DOK 2
25	A	**8.AF.2**	DOK 2
31	Answers will vary; the slope of Line be should be $\frac{1}{5}$ and the y-intercept given on the graph should make b in the equation.	**8.AF.8(E), 8.AF.6(E)**	DOK 2
32	$6b - 56 \geq 100; 26$	**8.AF.1(E)**	DOK 2

Geometry, Measurement, Data Analysis, Statistics, and Probability			
Item number	Correct answer	Standard(s)	DOK
8	(5,2)	**8.GM.1(E)**	DOK 1
10	20	**8.GM.3**	DOK 2
14	C	**8.DSP.3(E)**	DOK 1
17	0.1; B, C	**8.DSP.4(E)**	DOK 2
20	14	**8.GM.3(E)**	DOK 2
23	D	**8.GM.1(E)**	DOK 2
26	9.5	**8.GM.2(E)**	DOK 2
27	A, B, E	**8.DSP.1**	DOK 2
28	4,849	**8.GM.2(E)**	DOK 2
29	A	**8.DSP.2(E)**	DOK 2
30	9.5	**8.GM.1(E), 8.GM.3(E)**	DOK 2
34	A	**8.DSP.2(E)**	DOK 2
35	C	**8.GM.3(E)**	DOK 2

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