THIRD SPACE LEARNING

8th Grade Washington State Practice Math Test

Washington Practice Test
Grade 8

Grade 8

Questions

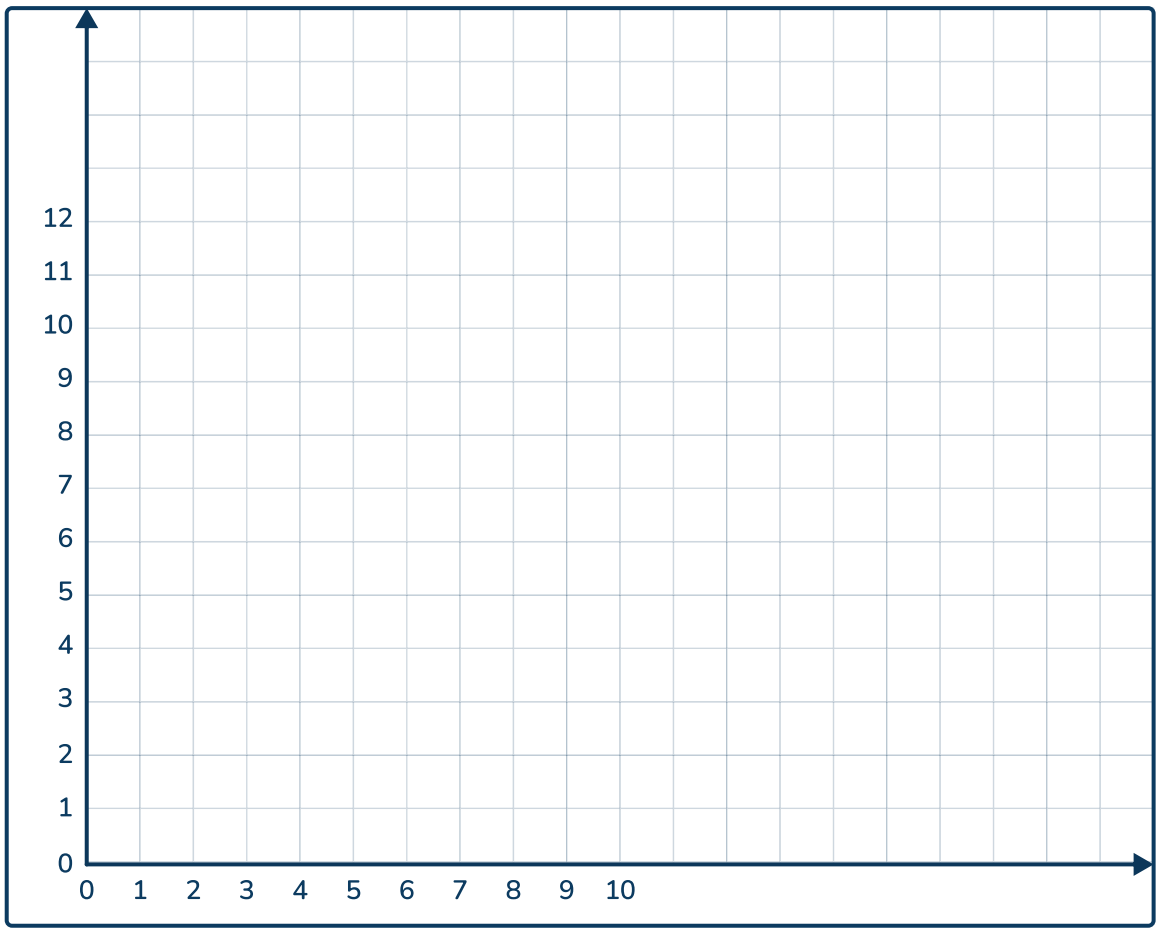
Name: ..... Class: .....

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

1 Enter the value of m for the equation $3^m = (3^7)(3^{10})$.

Answer

2 The number of cans a machine fills is proportional to the number of minutes the machine operates. The machine fills 320 cans every 40 minutes. Create a linear equation to represent this scenario.



3 Check off whether the comparisons in the tables are true or false.

	True	False
$\sqrt{17} < 4\frac{2}{3}$		
$\sqrt{3} < 1\frac{1}{2}$		
$\frac{5}{\sqrt{2}} < \Pi$		

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

5 Find the solutions to the equation below. Select all that apply.

$$x^2 = 36$$

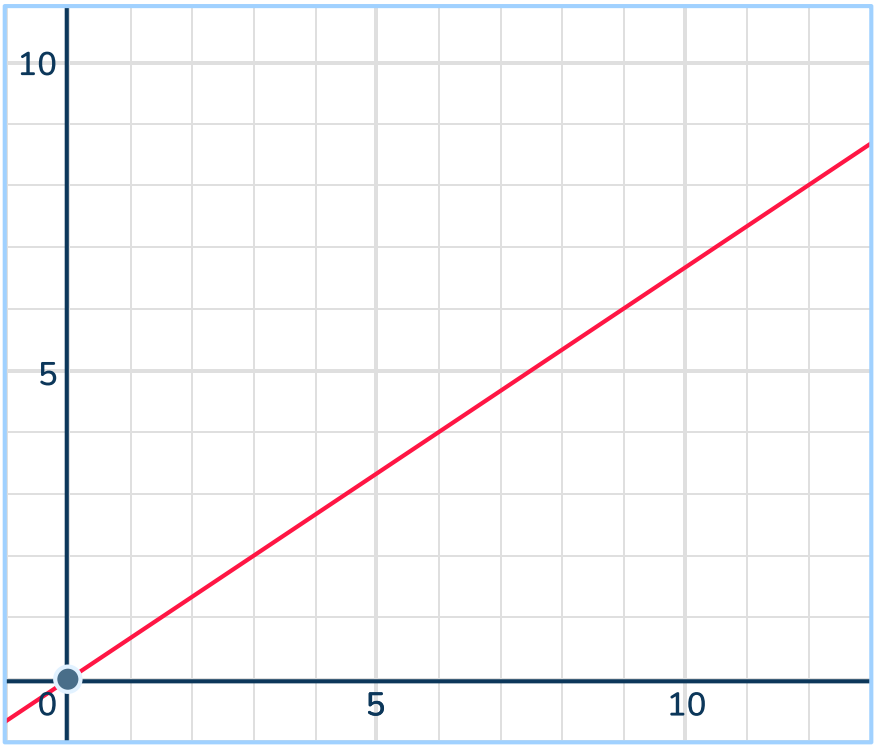
A. 18
B. 6
C. -18
D. 36
E. -6

---

6 Determine if the number is rational or irrational.

	Rational	Irrational
5Π		
$\sqrt{169}$		
$-2\frac{1}{7}$		
$\sqrt{6}$		

7 Determine the equation of the line in the form of $y = mx$ where m is the slope.



Write your answer in the space.

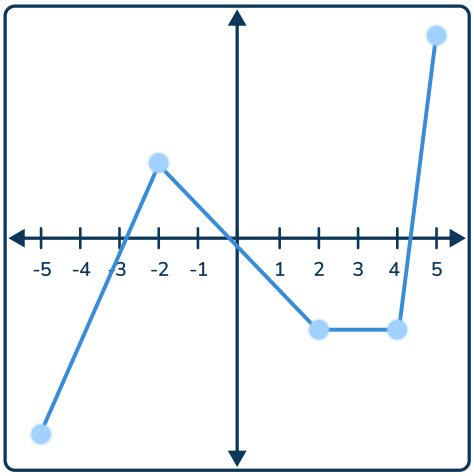
Answer

8 Determine if the statements are true or false.

A feather from a bird falls to the ground at a rate of 4 feet per 3 seconds. The bird is sitting on a branch of a tree that is 32 feet above the ground.

Statement	True	False
The feather falls a rate of $\frac{4}{3}$ ft per second.		
The initial height of the feather is 32 ft.		
The feather is 12 feet above the ground after 16 seconds.		
The rate of the feather falling is 3 ft per 4 seconds		

9 The graph below shows y as a function of x. For each interval in the table, indicate whether the function is increasing, decreasing, or neither increasing nor decreasing over the interval.



In the table, check off the correct box.

Interval	Increasing	Decreasing	Neither increasing nor decreasing
$-5 < x < -2$			
$-2 < x < 2$			
$2 < x < 4$			
$4 < x < 5$			

10 What is the solution to the equation?

$$-2(3x - 2) = -2x + 1$$

A. $x = -\frac{3}{4}$

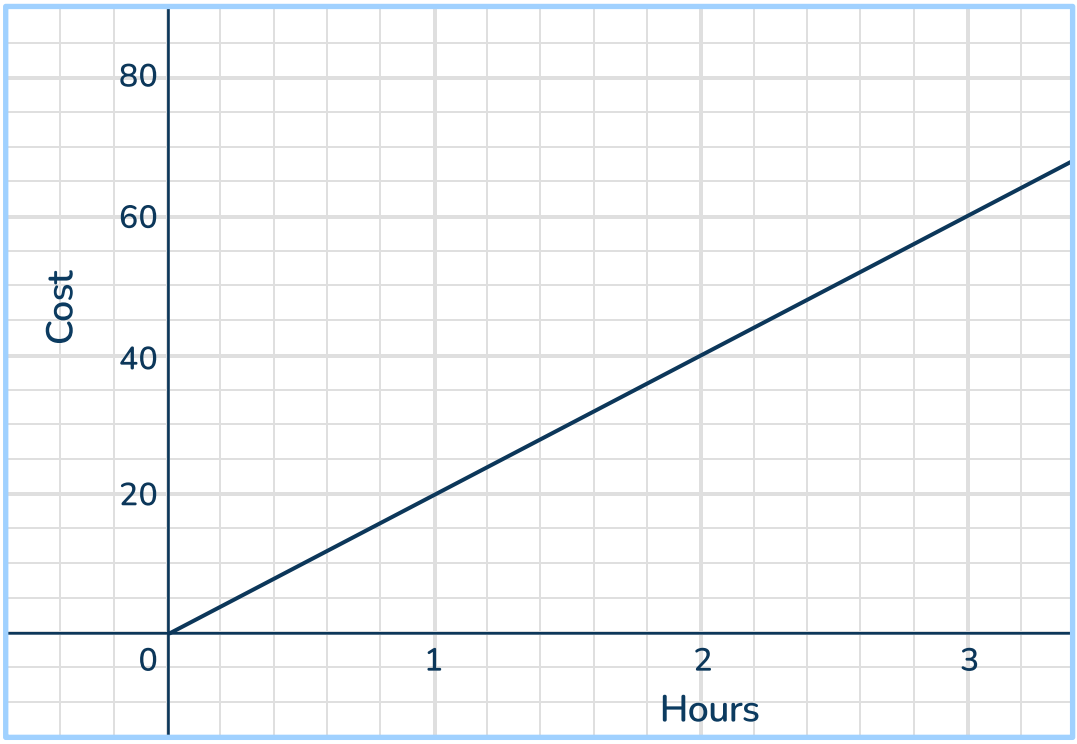
B. $x = \frac{3}{4}$

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

D. $x = -\frac{4}{3}$

11 There are two house painters that paint houses in a particular town.

House painter #1 cost per hour can be represented by the graph.

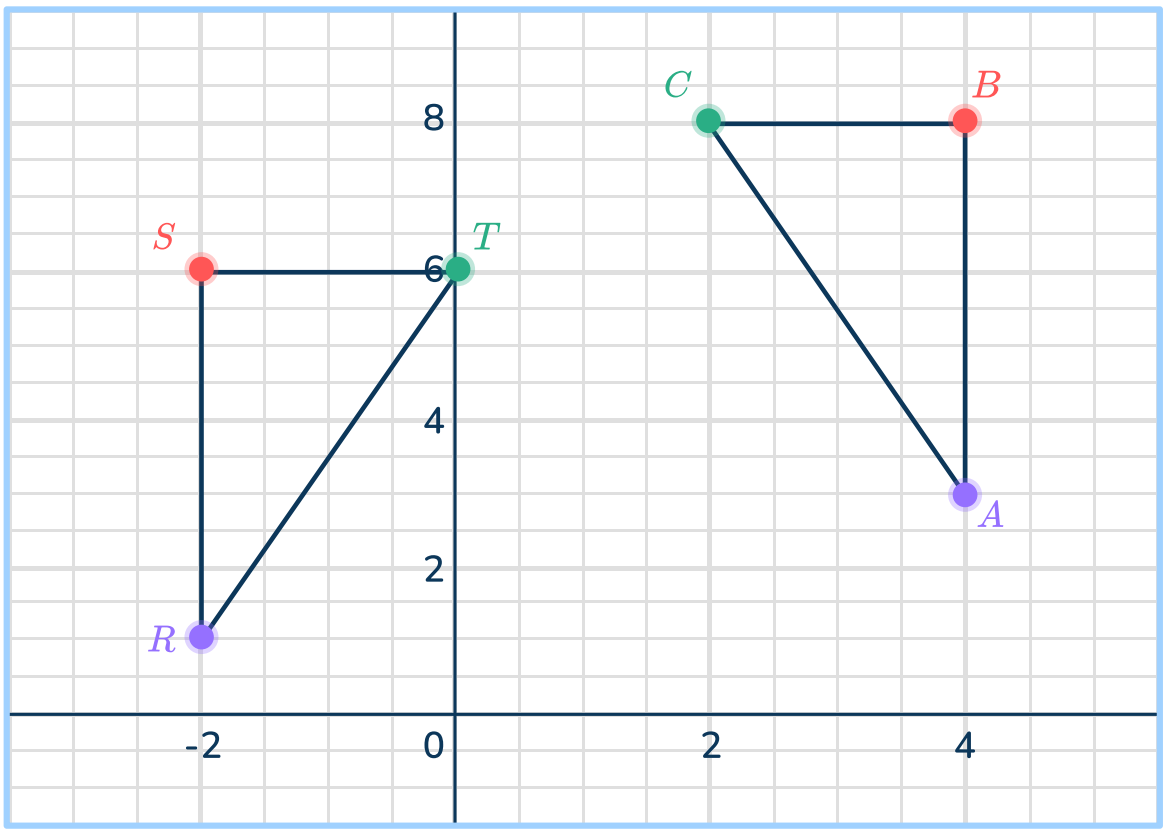


House painter #2 cost per hour can be represented by the equation, $y = 25x$

Based on this information, which statement is true?

A. House painter #1 charges $5 less per hour than house painter #2.
B. House painter #1 charges $5 more per hour than house painter #2.
C. House painter #1 charges the same amount per hour as house painter #2.
D. House painter #1 charges $15 less per hour than house painter #2.

12 Which sequence of transformations maps triangle RST to triangle ABC?



A. Reflection over the line $y = x$ followed by a translation of 2 units up and 2 units right.

B. Translation of 2 units right and 2 units up followed by a reflection over the y-axis.

C. Reflection over the y-axis followed by a translation of 2 units up and 2 units right.

D. Reflection over the x-axis followed by a translation of 2 units up and 2 units right.

13 Eduardo solved the equation below.

$2.2(3x - 1.5) - 0.6 = -1.4(2x - 7)$
Step 1: $6.6x - 3.3 - 0.6 = -2.8x + 9.8$
Step 2: $6.6x - 3.9 = -2.8x + 9.8$
Step 3: $3.8x - 3.9 = 9.8$
Step 4: $3.8x = 13.7$
Step 5: $x = 3.605...$

Identify the error that Eduardo made and correct to solve the equation correctly.

Answer

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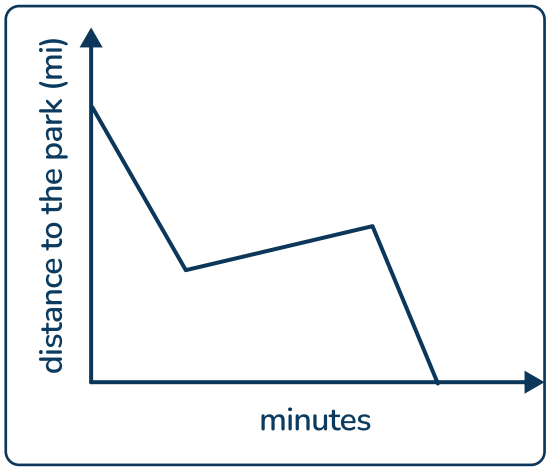
14 Which expressions have a value of $\frac{1}{64}$? Select **all** the correct answers.

A. $\frac{2^2}{2^8}$
B. $(2^3)^{-2}$
C. $2^{-8} + 2^2$
D. $(2^5)^{-1}$
E. $2^8 \times 2^{-2}$

15 The graph shows the distance a car is from the park.



Which statement about the function is true?

A. As the minutes increased, the car's distance from the park decreased.
B. The car started at the park and then drove away.
C. During the middle of the drive, the car was moving away from the park.
D. The car got close to the park but never arrived.

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16 Check off the correct classification for each equation:

	$y = x^3 - 4$	$-x + \frac{1}{2}y = -9$	$2x^2 = y$	$\sqrt{9} = y$	$x = -\frac{3}{4}$	$y = \sqrt{x}$
Linear						
Non-Linear						

17 The 6th and 7th graders and River Valley High School are required to take a foreign language class, either Spanish or Mandarin.

	Spanish	Mandarin
6th graders	61	45
7th graders	78	x

If 36% of 6th and 7th graders take Mandarin, what is the approximate value of x?

A. 33
B. 217
C. 28
D. 66

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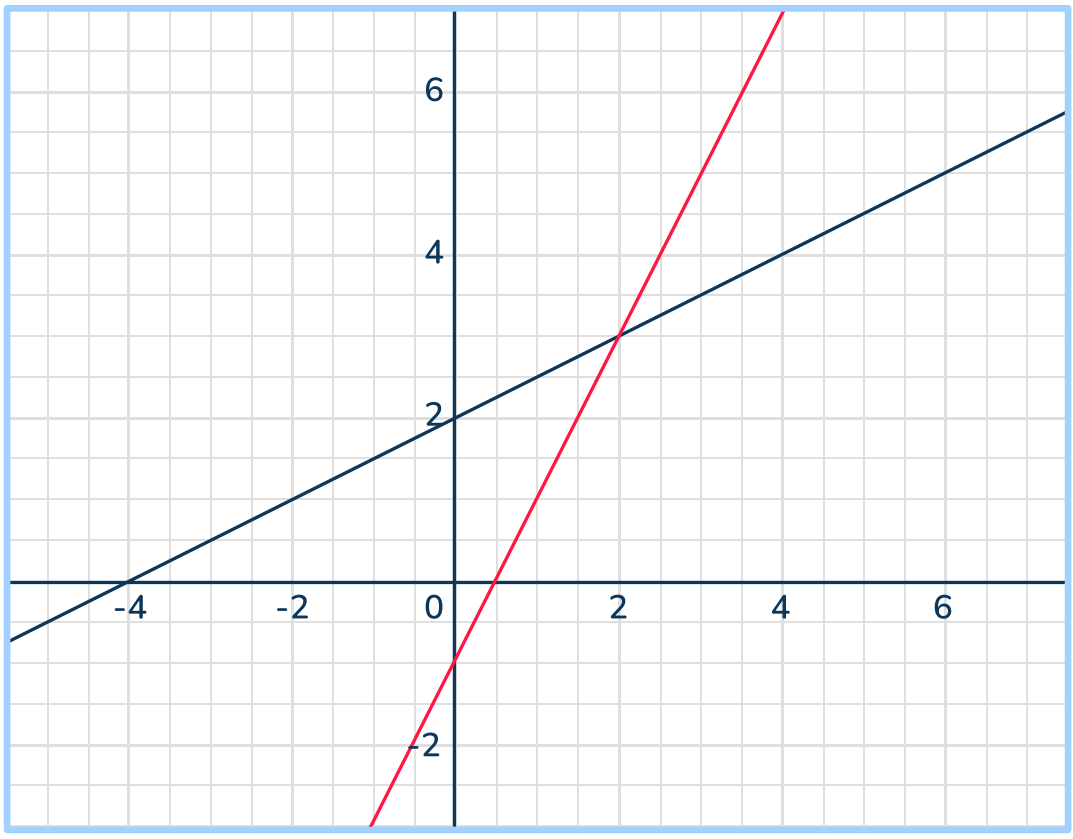
18 Determine the solution to the linear system graphed below.



Solution: x = _____ y = _____

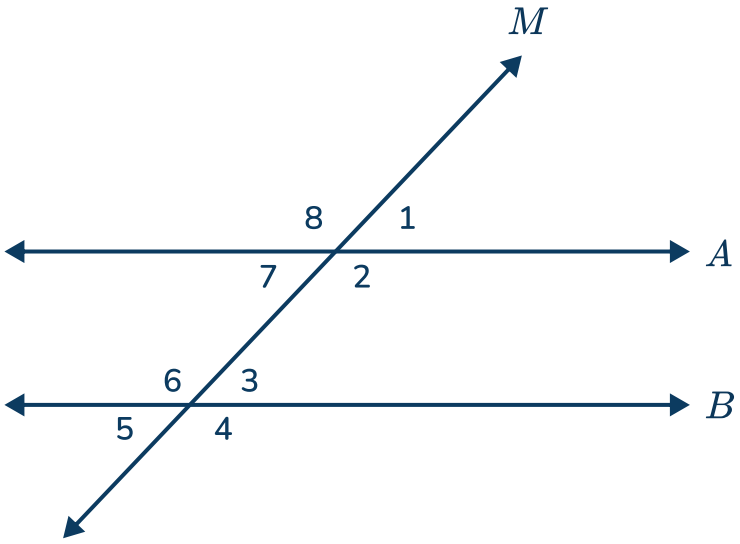
19 Jo runs her family's plumbing business. The table below shows the service charges for the hours worked. Write a linear equation that represents the information in the table.

Hours worked, x	Total amount of money charged, y
0	$75
2	$165
4	$255
6	$345

Write your answer in the space.

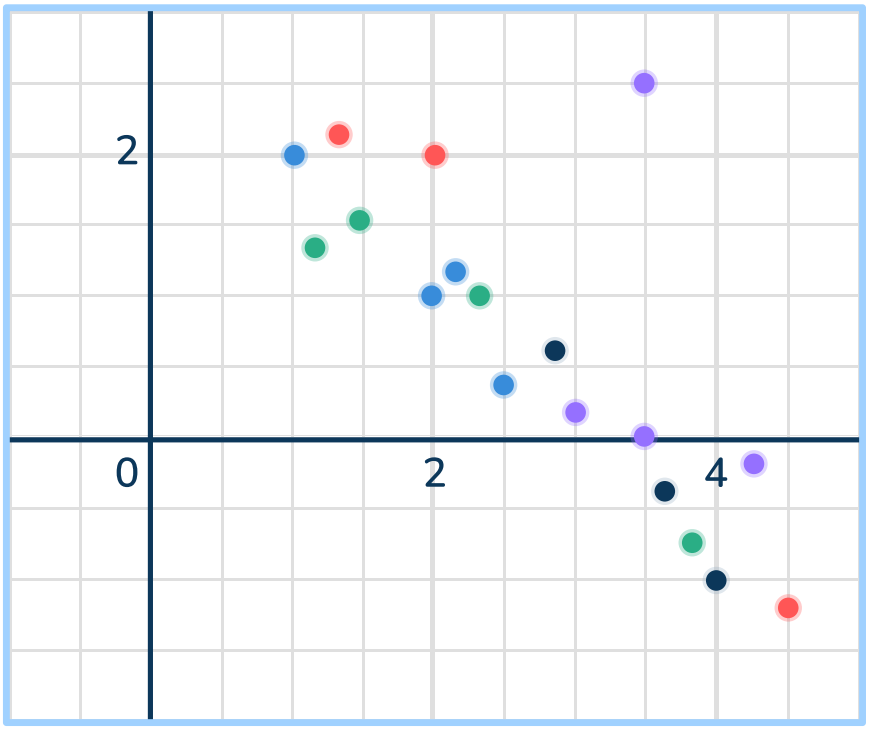
Answer

20 Use the figure below to determine if the angle comparison is true. Line A and B are parallel with line M as the transversal, and Angle 1 is less than Angle 6.



	True	False
Angle 8 = Angle 6		
Angle 7 > Angle 1		
Angle 4 > Angle 3		

21



Which statement about the scatter plot is NOT true?

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

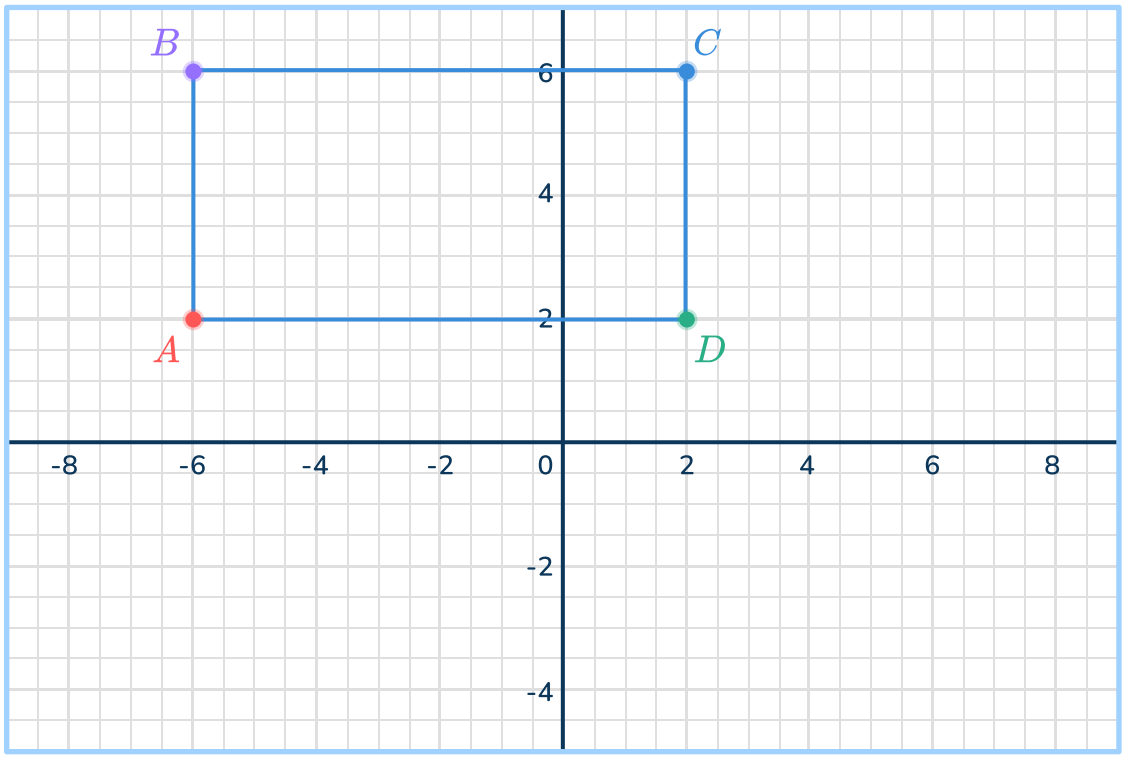
---

22 Johanna is building a fence around her garden. She has 27 feet of fencing to enclose the right triangle shaped garden. If the two shorter sides of the triangular shaped garden are both 8 feet, calculate if she will have enough fencing.

Show your work in the space below.

Answer

23 The rectangle graphed below is rotated 90 degrees clockwise about (-2, 2) and then translated three units down. What are the coordinates of point B in the resulting figure?



Place your answer in the space below.

Answer

24 The points A(-2, 2) and B(3, -8) are plotted on the coordinate plane. What is the distance between the points?

Use the space below to write your answer.

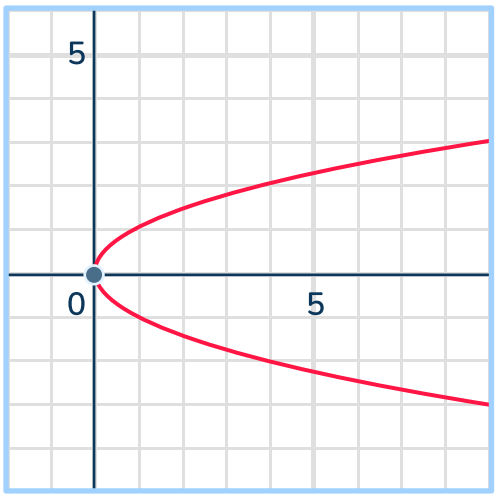
Answer

25 Simplify the expression with positive exponents. $\frac{4x^{-5}}{2x}$

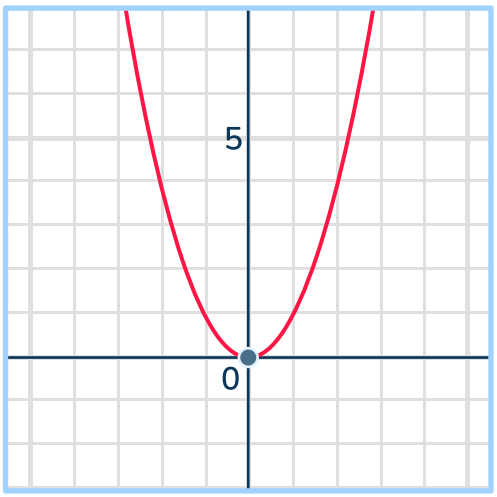
Answer

26 Which graph shows y to be a function of x?

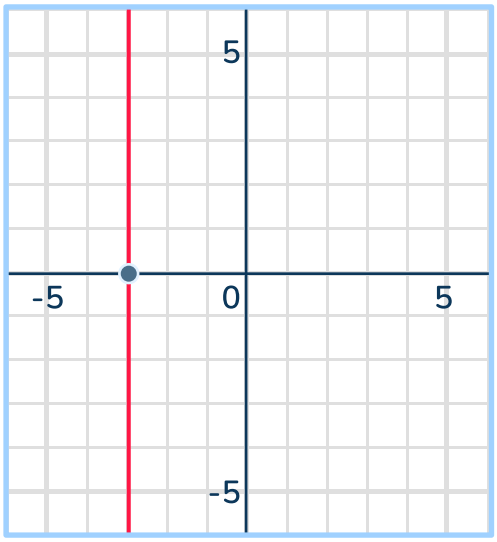
A.



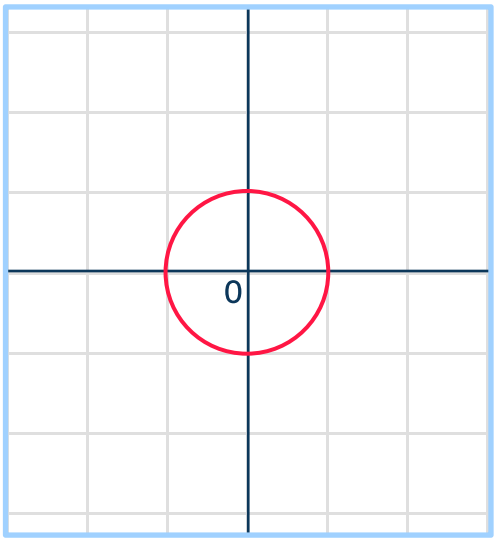
B.



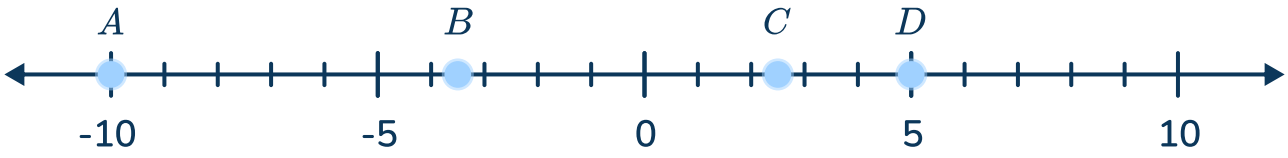
C.



D.



27 Which point is closest to $\sqrt{10}$?



Write your answer in the space below.

Answer

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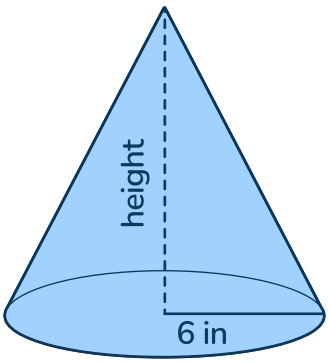
28 The volume of the cone is 339.12 in³ and the radius of the base is 6 in. Find the height.



Show your work and place your answer in the space below.

Answer

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

A.

x	-2	-1	0	1
y	3	8	13	18

B.

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

C.

x	2	3	4	5
y	-1	-3	-7	-13

D.

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

---

30 Which system of equations has infinite solutions?

A. $y = -2x - 4$

$y = 2x + 4$

B. $x + y = 2.5$

$x + 2.5 = y$

C. $2y = x + 4$

$-x + 2y = 8$

D. $5x - 5y = 2$

$x = y + 0.4$

31 The table below shows a linear function. Write the function in the form of $y = mx + b$.

x	y
0	-1
2	3
4	7
6	11

Write your answer in the space below.

Answer

---

32 Which numbers are irrational? Select all the correct answers.

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

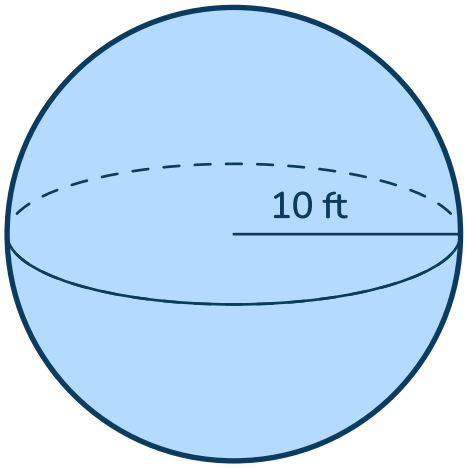
B. 4π

C. $\sqrt{5^2}$

D. $\sqrt{12}$

E. $\sqrt[3]{27}$

33 What is the approximate value of the volume of the sphere?



Use the space below to write your answer.

Answer

34 What is the value of the expression below?

$$\frac{0.5 \times 10^3}{2.5 \times 10^7}$$

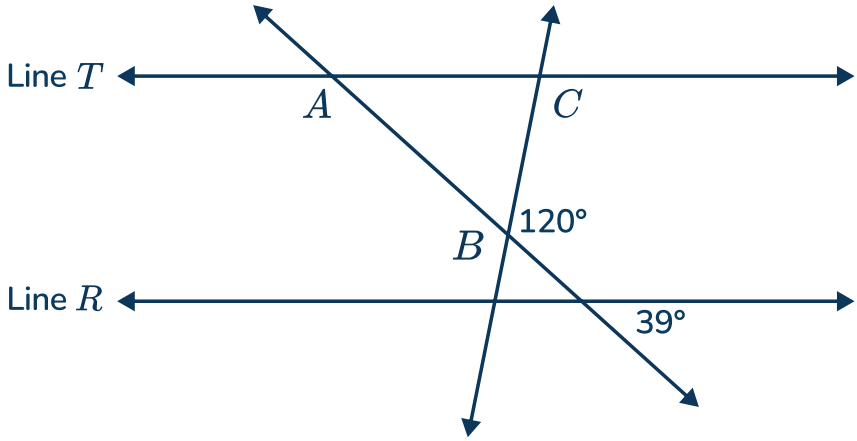
A. 2×10^{-5}

B. 0.2×10^4

C. 0.5×10^{-5}

D. 5×10^4

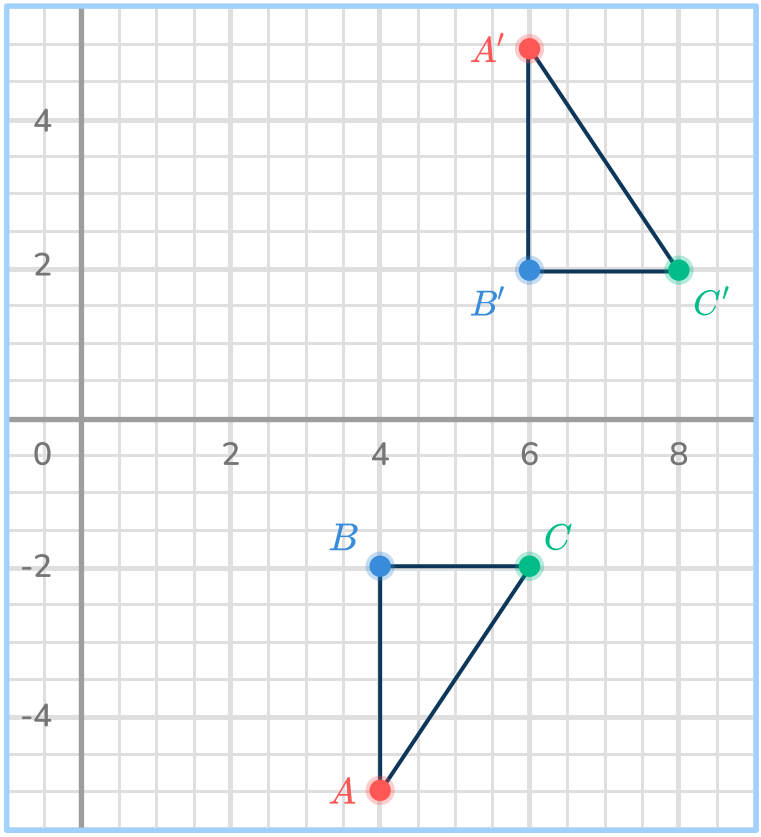
35 Line T and Line R are parallel lines, cut by two transversals.



What interior angles make up the triangle ABC?

A. 120°, 39° and 21°
B. 60°, 39° and 81°
C. 60°, 39° and 21°
D. 120°, 39° and 81°

36 Which sequence of transformations maps triangle ABC to triangle A'B'C'?



A. Reflection over the line $y = x$ followed by a translation of 2 units up.
B. Translation of 2 units right followed by a reflection over the y-axis.
C. Reflection over the y-axis followed by a translation of 2 units up.
D. Reflection over the x-axis followed by a translation of 2 units right.

37 Which set of coordinates does not represent a function?

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

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

C. {(6, 2), (-6, -2), (6, 10)}

D. {(0, 0), (7, 1), (-6, 1)}

---

38 The distance from New York City to Jersey City is about 2.5×10^5 inches. The distance from New York City to Los Angeles is about 7.2×10^4 times farther. About how many inches is the distance from New York City to Los Angeles?

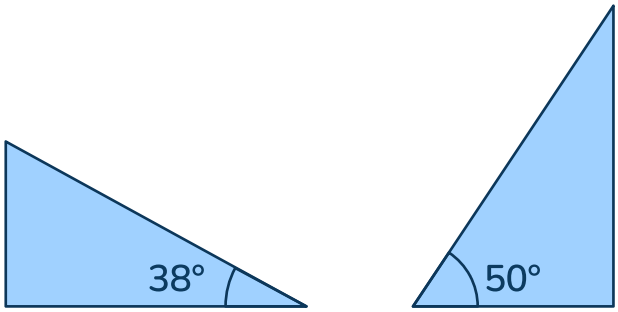
A. 1.8×10^{10}

B. 18×10^9

C. 3.7×10^1

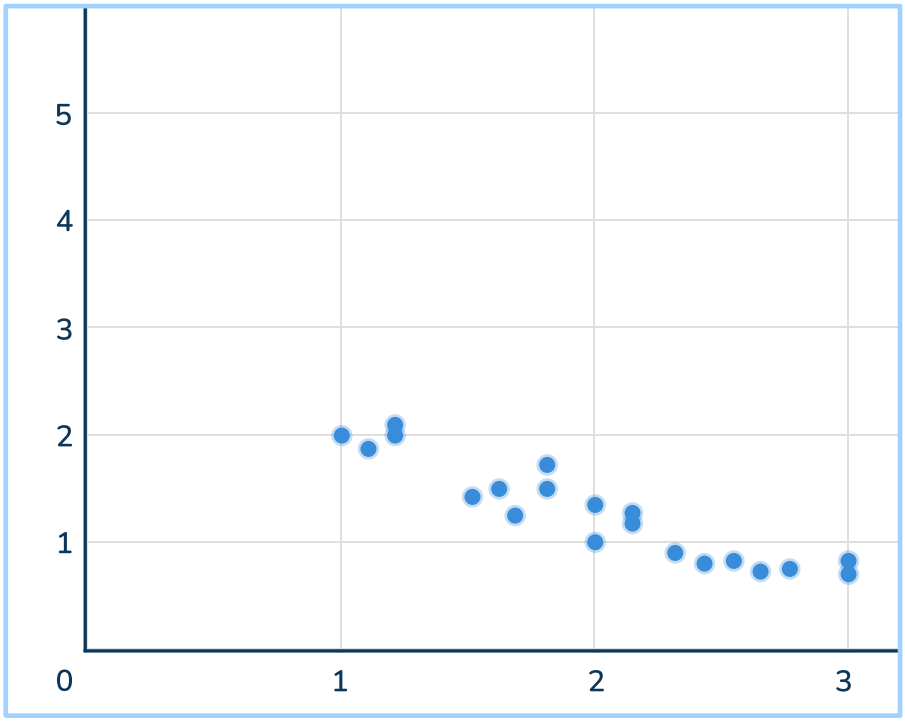
D. 0.37×10^2

39 Are the right triangles similar? Why or why not?



A. Yes, because they are both right triangles.
B. No, because one has a larger height than the other.
C. Yes, because the corresponding sides have the same ratio.
D. No, because the corresponding angles are not equal.

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



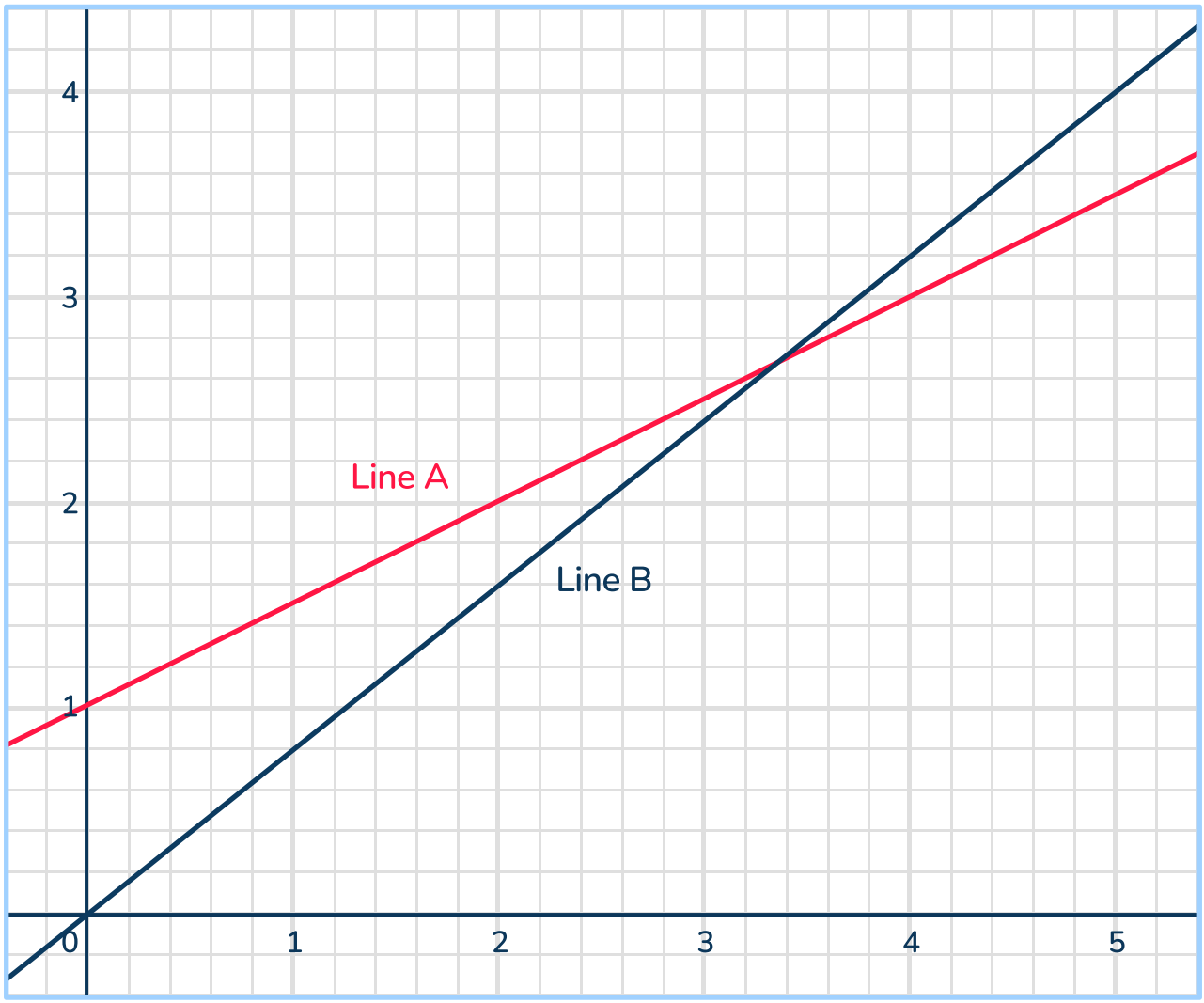
A. $-0.8x + 2.75 = y$

B. $0.7x + 3 = y$

C. $2.8 - x = y$

D. $x - 1 = y$

41 Which statements about the two lines shown in the graph are true? Select all the correct answers.



A. Line A and Line B represent proportional relationships..

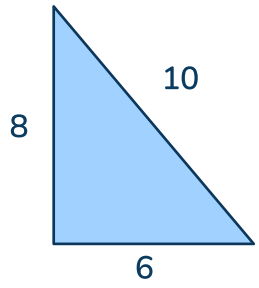
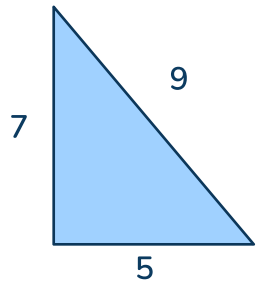
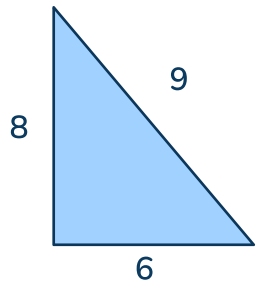
B. In Line B, for each +1 change is x, there is a $+\frac{5}{4}$ change in y.

C. The slope of Line B is greater than the slope of Line A.

D. The slope of Line A is 2, which is the same as its unit rate.

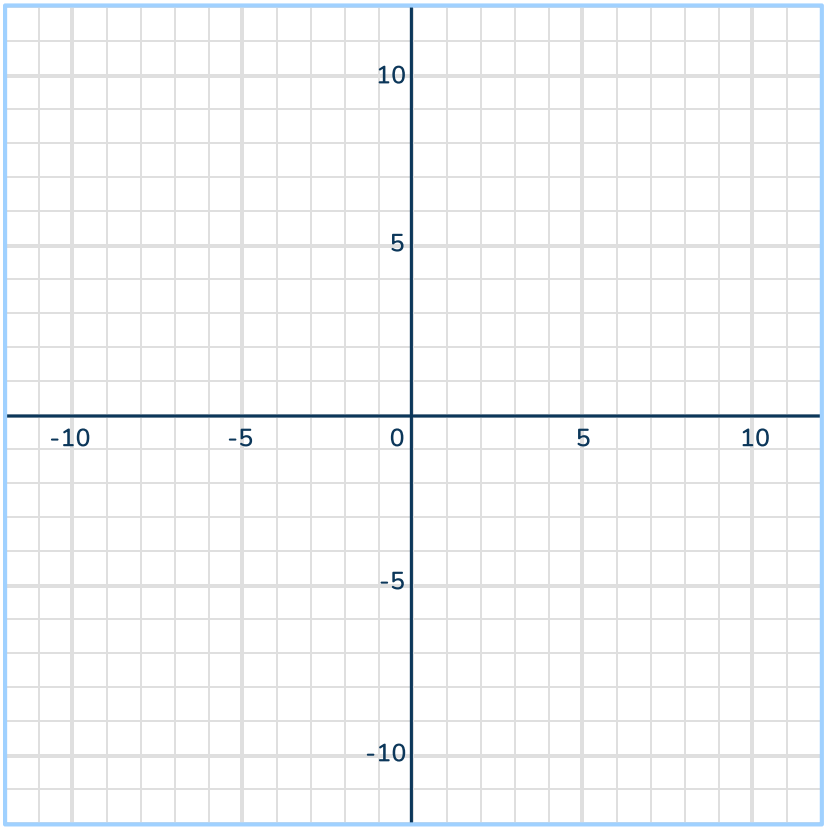
E. As a system, Line A and Line B have one solution.

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

Triangle	Acute	Right	Obtuse
			
			
			

43 Quadrilateral ABCD has points A(-4, 3), B(-4, -2), C(3, 3), and D(3, -2). The quadrilateral is dilated by a scale factor of 1.5 about the origin and then reflected over the line $y = x$.

Draw the new quadrilateral and compare it to the original one.
Explain if they are congruent or similar.



Use the space below to write your explanation.

Answer

Answer Key - Multiple Choice

Item number	Correct answer	Standard(s)	Depth of Knowledge
1	$m = 17$	**8.EE.A.1**	DOK 2
2	$y = 8x$	**8.EE.B.5**	DOK 2
3	True False False	**8.NS.A.2**	DOK 1
4	B	**8.F.A.3**	DOK 3
5	B, E	**8.NS.A.2**	DOK 1
6	Irrational Rational Rational Irrational	**8.NS.A.1**	DOK 2
7	$y = \frac{2}{3}x$	**8.F.B.4**	DOK 3
8	True True False False	**8.EE.B.6**	DOK 3
9	Inc Dec Neither Inc	**8.F.B.5**	DOK 2
10	B	**8.EE.C.7**	DOK 1
11	A	**8.F.B.5**	DOK 3
12	C	**8.G.A.4**	DOK 3

Item number	Correct answer	Standard(s)	DOK
13	Step 3: because you should add $6.6x$ and $2.8x$ to get $9.4x$ $9.4x$ -3.9 = -9.8 $9.4x$ = -5.9 x = -0.628	**8.EE.C.7**	DOK 3
14	A, B	**8.EE.A.1**	DOK 2
15	C	**8.F.B.4**	DOK 2
16	Nonlinear Linear Nonlinear Linear Linear Nonlinear	**8.FA.1**	DOK 2
17	A	**8.SP.A.4**	DOK 3
18	$x = 2, y = 3$	**8.EE.C.8**	DOK 1
19	$y = 45x + 75$	**8.F.B.4**	DOK 2
20	True False True	**8.G.A.5**	DOK 1
21	D	**8.SP.A.2**	DOK 2
22	Not enough fencing, $8^2 + 8^2 = x^2$ $128 = x^2$ $11.3 = x$ 8 + 8 + 11.3 = 27.3 Perimeter is a little more than 27 feet.	**8.G.B.7**	DOK 3

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Item number	Correct answer	Standard(s)	DOK
23	(2, 3)	**8.G.A.2**	DOK 2
24	$\sqrt{125} \approx 11.2$	**8.G.B.8**	DOK 2
25	$\frac{2}{x^6}$	**8.EE.A.1**	DOK 2
26	B	**8.F.A.1**	DOK 1
27	B	**8.NS.A.2**	DOK 2
28	About 9 inches	**8.G.C.9**	DOK 2
29	C	**8.F.A.1**	DOK 2
30	D	**8.EE.C.8**	DOK 2
31	$y = 2x - 1$	**8.F.B.4**	DOK 3
32	B,D	**8.NS.A.1**	DOK 1
33	4,187 ft³	**8.G.C.9**	DOK 2
34	A	**8.EE.A.4**	DOK 2
35	B	**8.G.A.5**	DOK 3
36	D	**8.G.A.3**	DOK 2
37	C	**8.F.A.1**	DOK 1
38	A	**8.EE.A.4**	DOK 2
39	D	**8.G.A.4**	DOK 2
40	A	**8.SP.A.2**	DOK 3
41	C, E	**8.EE.C.8**	DOK 3

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Item number	Correct answer	Standard(s)	DOK
42	Right Obtuse Acute	**8.G.B.7**	DOK 2
43	A'(4.5, -6) B'(-3, -6) C'(4.5, 4.5) D'(-3, 4.5) The rectangles are similar not congruent because the dilation makes the new rectangle larger than the first one	**8.G.A.3, 8.G.4**	DOK 3

Breakdown of Assessment by domain				
The Number System (NS	Expressions and Equations (EE)	Functions (F)	Geometry (G)	Statistics and Probability (SP)
11%	28%	25%	29%	7%

Do you have a group of students who need a boost in math?

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“We just had our first session and it went great! The kids really liked it and felt like they were learning! One even said he finally felt like math was making sense.”

Michelle Craig, Instructional Coach,
Sherwood Forest Elementary, Washington

Speak to us

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