



THIRD SPACE  
LEARNING

# 8th Grade Illinois Readiness Assessment Practice Test

Practice Test Grade 8

Grade 8

## Questions

Name: .....

Class: .....

Date: .....

Score: .....

### Unit 1 - Section 1

#### No Calculator

12 questions

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

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

B.  $4\pi$

C.  $\sqrt{5^2}$

D.  $\sqrt{12}$

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

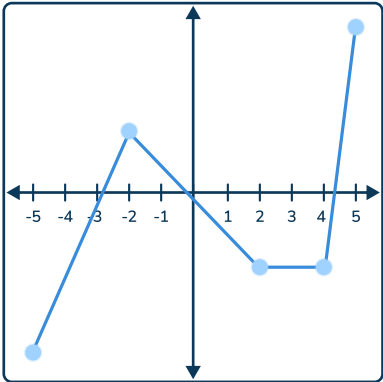
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2 Solve the equation for  $p$ . Place your answer in the space provided.

$$\sqrt[3]{p} = 8$$

Value of  $p$

- 3
- 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.



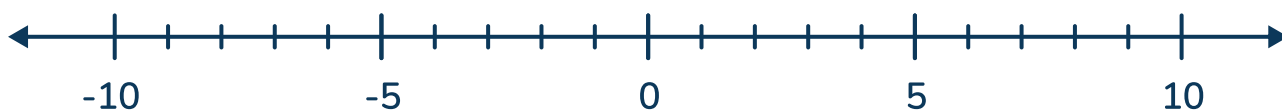
In the table, check off the correct box.

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

- 4
- 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.  $y = -14x + 8$
- D.  $y = 14x - 8$

- 5 Place a point on the number line that is the best approximation of  $\sqrt{10}$  ?



- 6 Which expressions have a value of  $\frac{1}{64}$ ? Select all that apply.

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



- 7 Find the solution to the system of equations.

$$x = 8$$

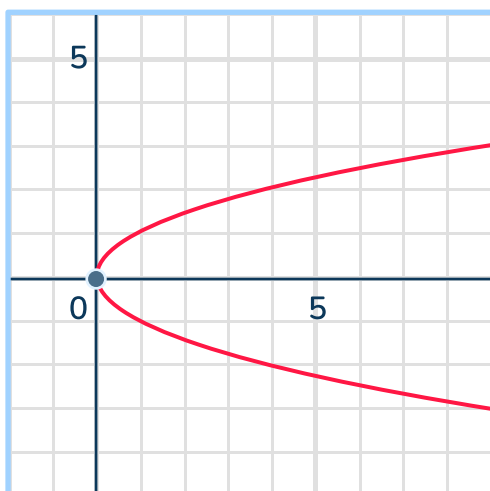
$$2x + 4y = -8$$

Enter your answer in the spaces below.

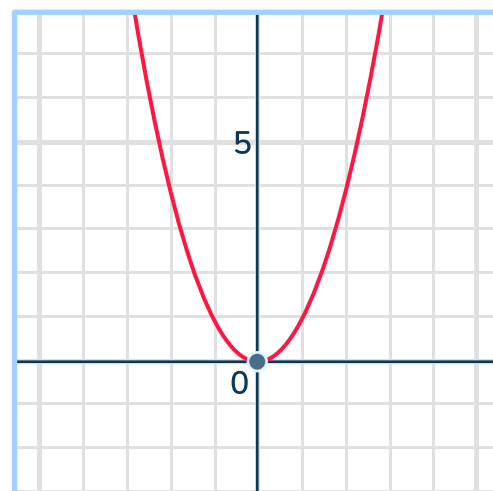
( \_\_\_\_\_ , \_\_\_\_\_ )

- 8 Which graph shows  $y$  to be a function of  $x$ ?

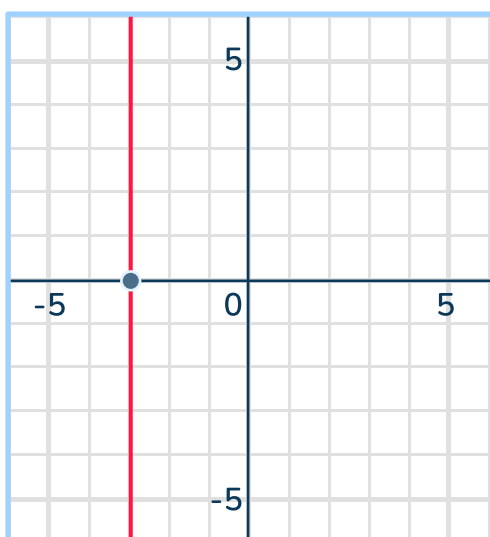
A.



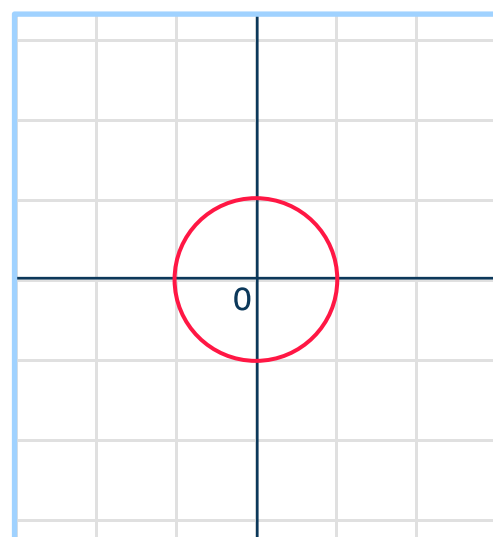
B.



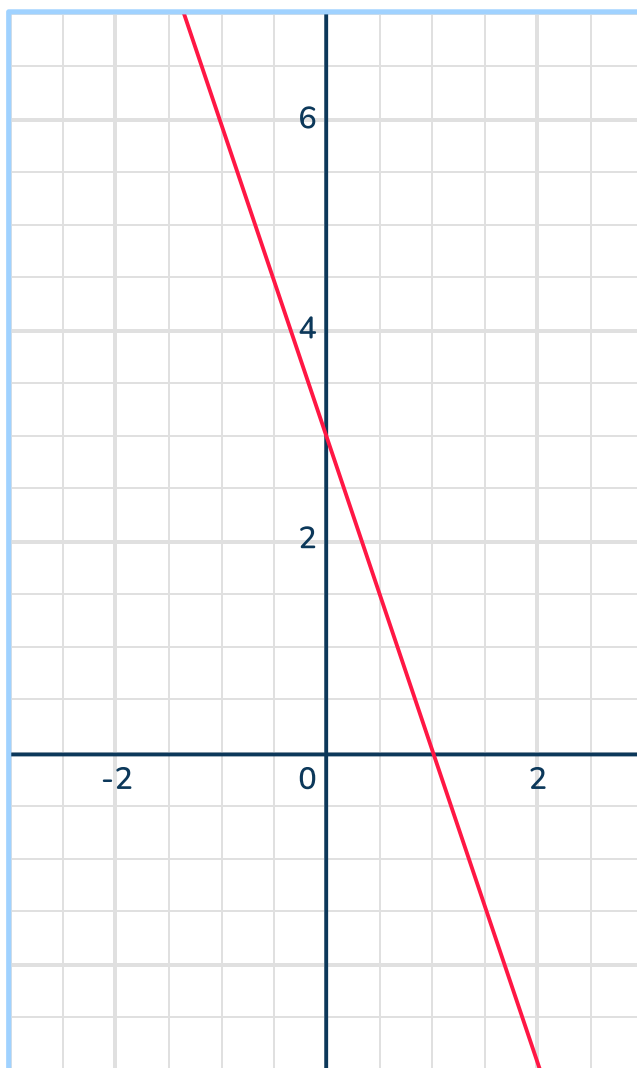
C.



D.



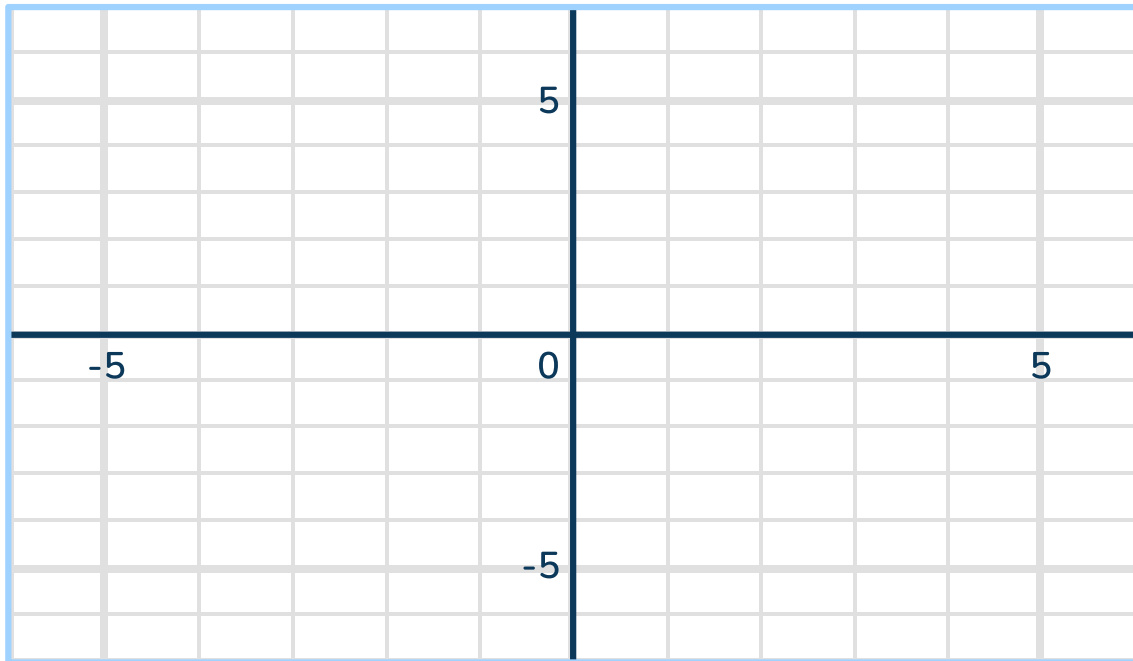
- 9 Write the equation of the line in  $y = mx + b$  form that is represented by the graph below.



Place your answer in the space below.

Equation of the line.

- 10  $\triangle TGS$  with vertices  $T(0, 1)$ ,  $G(-2, 3)$ , and  $S(-4, -1)$  will be rotated  $180^\circ$  about the origin. What will be the coordinates of  $S'$ ?



Write your answer in the space below.

( \_\_\_\_\_ , \_\_\_\_\_ )

- 11 The table and the equation both show a different relationship between  $y$  and  $x$ .

Function A

$x$	$y$
2	-14
3	-11
5	-5

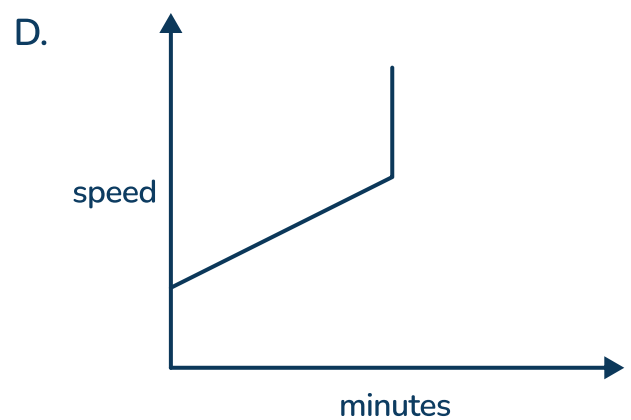
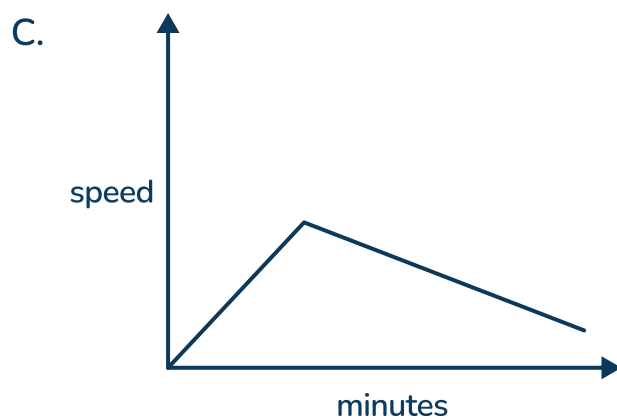
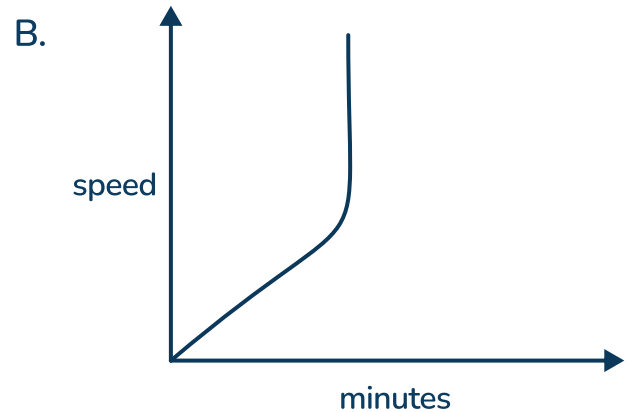
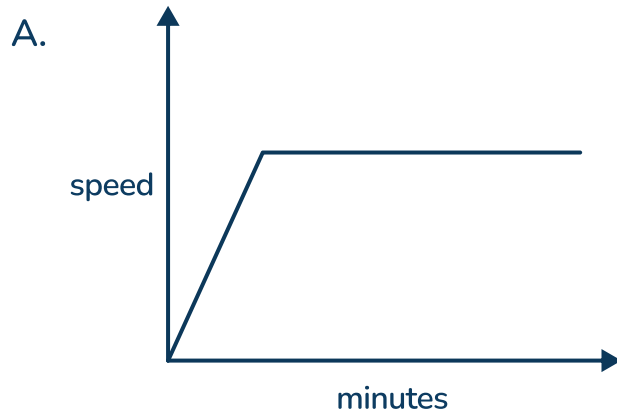
Function B

$$y = 2x + 3$$

Which statement about the functions is true?

- A. The rate of change of Function A is less than the rate of change of Function B because  $-3 < 2$ .
- B. The rate of change of Function A is greater than the rate of change of Function B because  $3 > 2$ .
- C. The rate of change of Function A is less than the rate of change of Function B because  $-14 < 7$ .
- D. The rate of change of Function A is greater than the rate of change of Function B because  $-14 > -7$ .

- 12 The speed of a car was measured in minutes. It was parked and then immediately began to increase its speed at a constant rate. The speed continued to increase for a few minutes, and then the speed stayed the same for the rest of the time. Which is a graph of the function described above?



## Illinois Practice Test | Grade 8 | Questions

### Unit 1 - Section 2

Calculator Permitted

4 questions

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

Place your answer in the space below.

- 
- 14 What is the solution to the equation?

$$-2.5(3x - 2) = 2.5x + 1.5$$

Write your answer in the space below.

Value of  $x$ .

- 15 What is the value of the expression below?

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

- A.  $2 \times 10^{-5}$
- B.  $0.2 \times 10^4$
- C.  $0.5 \times 10^{-5}$
- D.  $5 \times 10^4$

- 16 Jo runs her family's plumbing business. The table below shows what the service charges are for the amount of hours worked.

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


**Part A:**

What is the rate per hour? (Price per hour)

 Answer


**Part B:**

Write a linear equation representing the information in the table.

 Answer

**Part C:**

How much will 10 hours of work cost?

 Answer



Unit 2

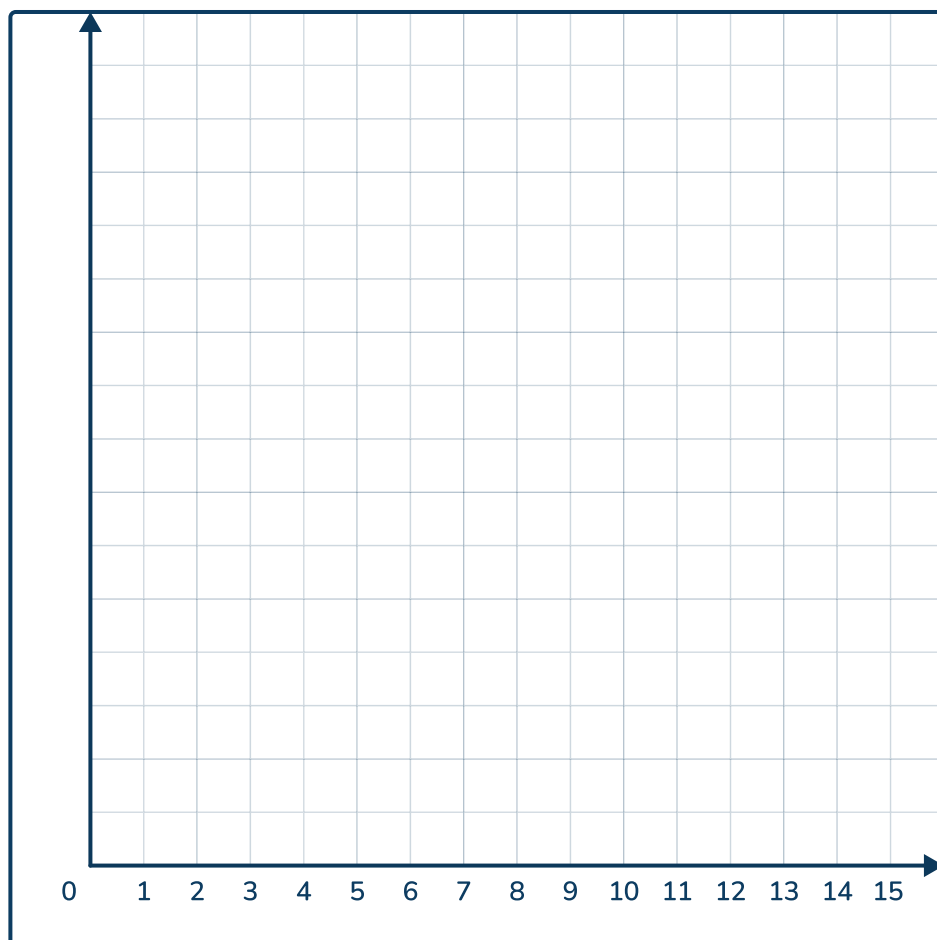
Calculator Permitted

8 questions

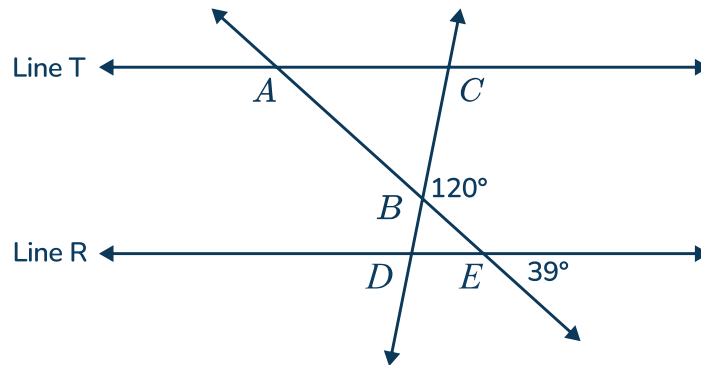
1 Simplify  $\frac{2a^4 (a^2)}{\frac{1}{2}a^3}$ .

- A.  $a^3$
- B.  $4a^2$
- C.  $a^5$
- D.  $4a^3$

- 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 graph that shows the number of bottles,  $y$ , the machine fills in  $x$  minutes.



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



Part A:

What are the measures of the interior angles that make up triangle  $ABC$ ?  
Use the space below to show your work.

Answer

Part B:

What are the measures of the interior angles that make up triangle  $DBE$ ?  
Use the space below to show your work.

Answer

Part C:

Are triangles  $ABC$  and triangle  $DBE$  similar? Explain. Use the space below to explain your answer.

Answer

- 4 Function A is represented by an equation, and Function B is represented by a table.

Based on the given information, answer the following questions.

Function A:  $-2x + 50$

Function B:

$x$	0	2	4	6
$y$	50	48	46	50

Part A:

Find the rate of change for each function.

Rate of change function A.

Rate of change function B.

Part B:


Find the  $y$ -intercept for each function.

$y$ -intercept function A.

$y$ -intercept function B.

Part C:

Are the functions increasing or decreasing? Use the space to explain.

 Answer

- 5 Pentagon ABCDE has point D(-3, 0.5). If Pentagon ABCDE is reflected over the  $y$ -axis, to form Pentagon A'B'C'D'E', what would be the coordinate of D'?

A. D'(-3, 0.5)  
B. D'(3, -0.5)  
C. D'(-3, -0.5)  
D. D'(3, 0.5)

---

- 6 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

- 7 Describe the solution to the system of linear equations below.

$$2y = x + 4$$

$$-x + 2y = 8$$

Use the space to write your answer.

 Answer

- 8 The figure below shows a right circular cylinder and right circular cone. The cylinder and the cone have the same base and the same height.



Part A:

What is the volume, in cubic feet, of the cone?

Volume of cone:

Part B:

What is the volume, in cubic feet, of the cylinder?

Volume of cylinder:

Part C:

What is the ratio of the cone's volume to the cylinder's volume?

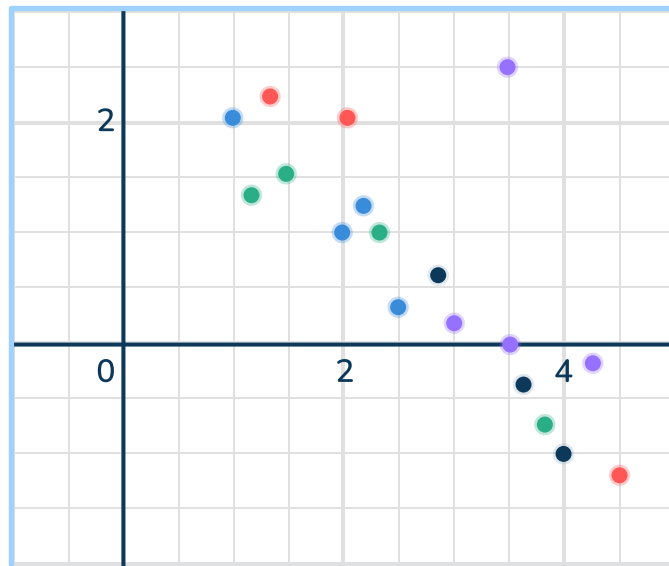
Write your answer as a simplified fraction in the box below.

Unit 3

Calculator Permitted

8 questions

- 1 The graph below is a scatter plot. 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.

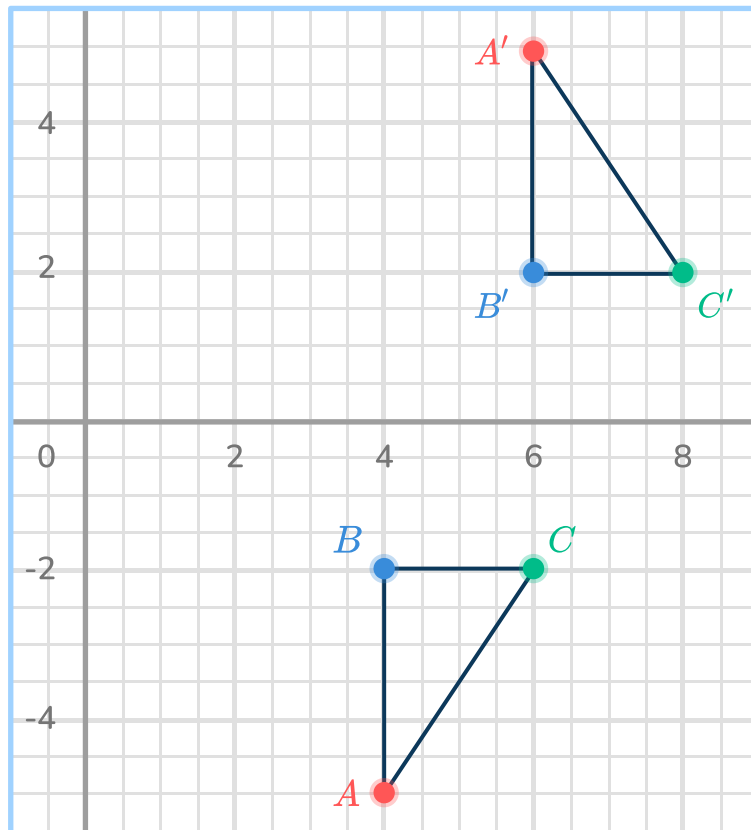
- 2 What value for  $k$  will make the equation have no solution?

$$8x - 26 + 2 = k\left(\frac{1}{2}x - 9\right)$$

Use the space below to write your answer.

Value of  $k$

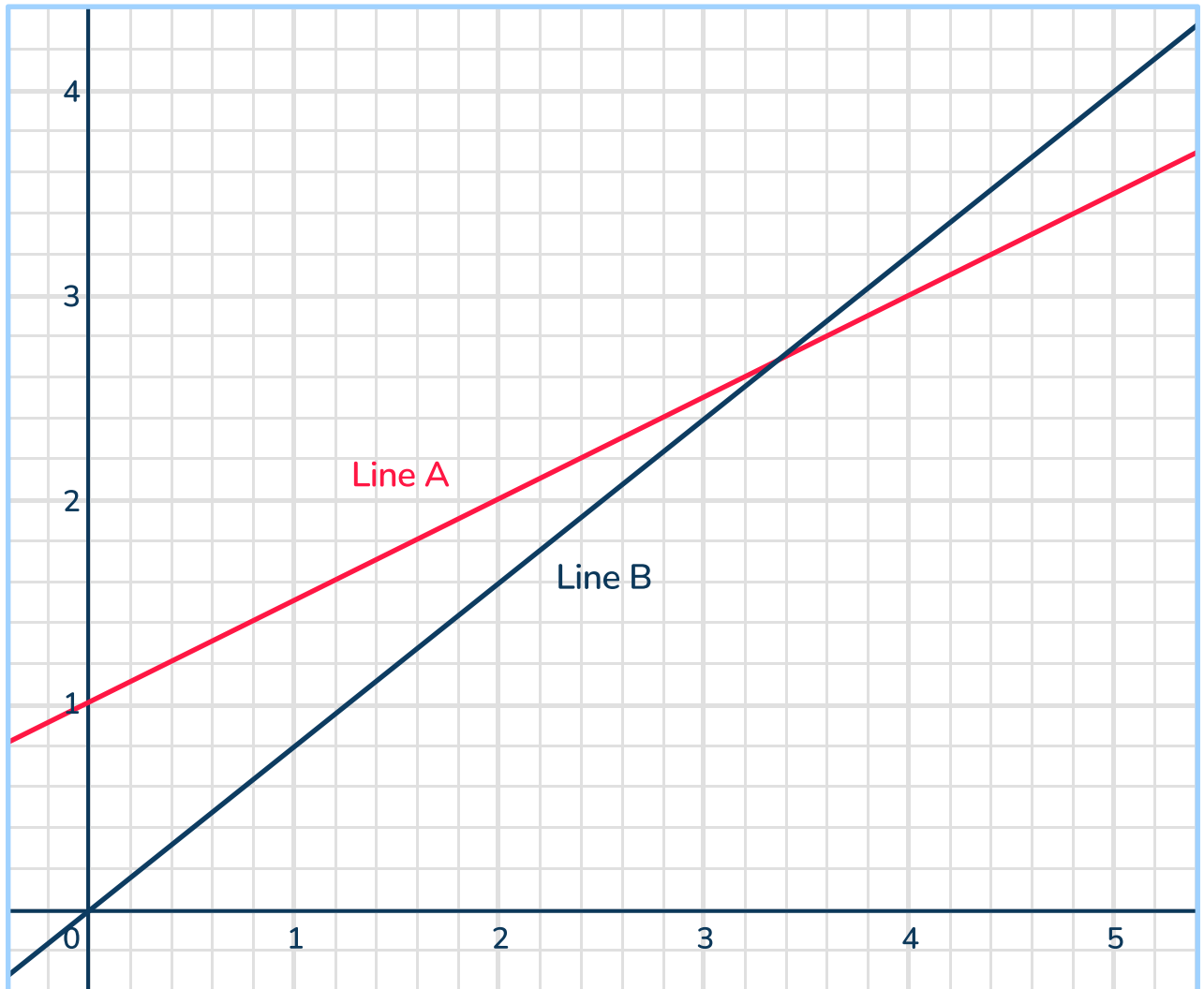
- 3 What is the sequence of transformations that maps triangle  $ABC$  to triangle  $A'B'C'$ ?



Use the space below to write your answer.

Answer

- 4 Which statements about the two lines shown in the graph are true? Select all that apply.



- A. Line A and Line B represent proportional relationships.
- B. In Line B, for each +1 change in  $x$ , 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.



- 5 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 from the origin and then reflected over the line  $y = x$ .

Find the coordinates of the new quadrilateral:

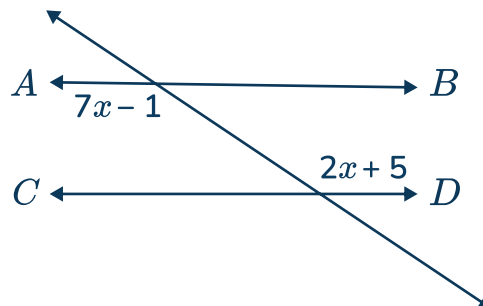
A' ( \_\_\_\_\_, \_\_\_\_\_ )

B'( \_\_\_\_\_, \_\_\_\_\_ )

C'( \_\_\_\_\_, \_\_\_\_\_ )

D'( \_\_\_\_\_, \_\_\_\_\_ )

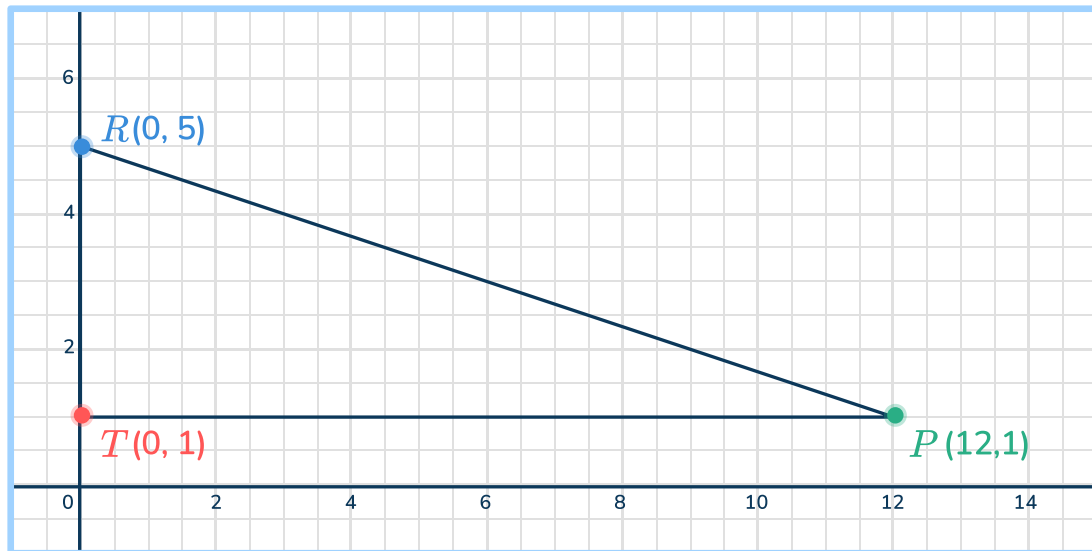
- 6 Line AB and line CD are parallel. What is the value of  $x$ , rounded to the nearest tenth?



Use the space below to write your answer.

Value of  $x$ :

7



If the triangle is dilated by  $\frac{3}{4}$ , what is the distance from R' to P'?

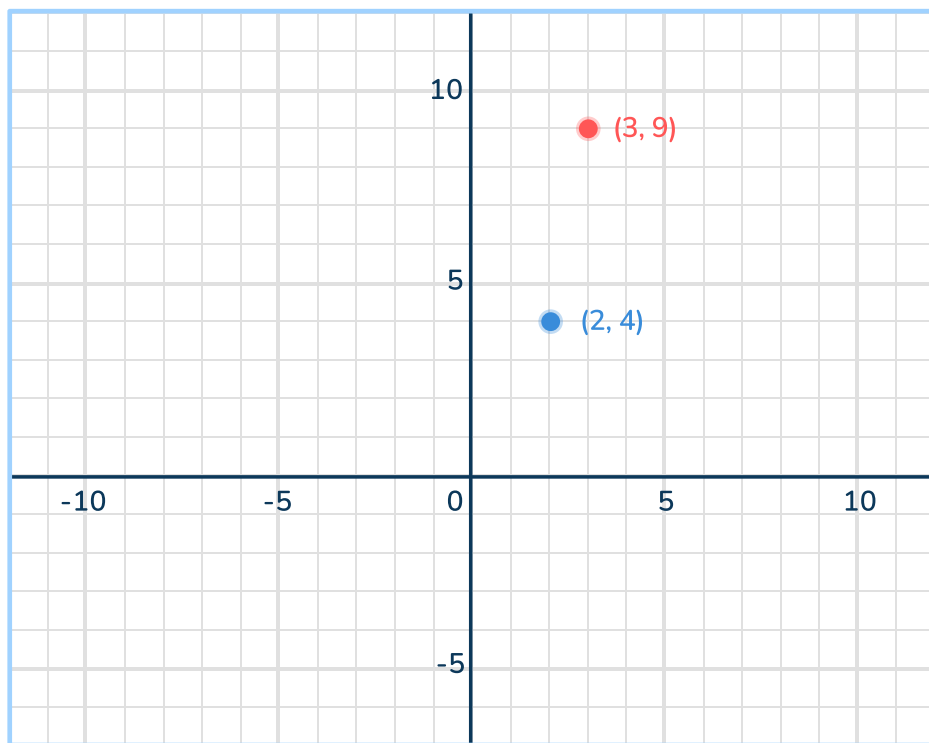
Which strategies lead to the correct answer? Select all the correct answers.

- A. Calculate  $\sqrt{4^2 + 12^2}$  and multiply the positive root by  $\frac{3}{4}$ .
- B. Multiply each coordinate by  $\frac{3}{4}$  and then find the perimeter of the new triangle.
- C. Calculate the square root of  $5^2 + 12^2$  and multiply the positive root by  $\frac{3}{4}$ .
- D. Shift each vertex of the triangle down  $\frac{3}{4}$  units, then count the units from R' to P'.
- E. Multiply (0,5) and (12,1) by  $\frac{3}{4}$  and then calculate the positive root of  $\sqrt{9^2 + 3^2}$ .

8 A math class is looking at the graph below. Students in the class make the following comments:

- Freya says the coordinates represent a linear function.
- Marco says the coordinates represent a nonlinear function.
- Henry says the coordinates do not represent a function.


For each student, decide what third coordinate would prove their statement to be correct. Explain.



Use the space below to provide an explanation.

 Answer

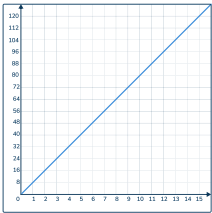
## Answer Key - Unit 1

Item number	Correct answer	Standard(s)	DOK
1	B, D	8.NS.A.1	DOK 1
2	$p = 512$	8.EE.A.2	DOK 2
3	Increase Decrease Neither	8.F.B.5	DOK 3
4	B	8.EE.B.6	DOK 2
5	Point placed between 3 and 4 	8.NS.A.2	DOK 2
6	A, B	8.EE.A.1	DOK 2
7	(8, -6)	8.EE.C.8	DOK 2
8	B	8.F.A.1	DOK 1
9	$y = -3x + 3$	8.F.A.3	DOK 2
10	(4, 1)	8.G.A.3	DOK 2
11	B	8.F.A.2	DOK 2
12	A	8.F.B.5	DOK 2
13	11.18	8.G.C.8	DOK 1
14	0.35	8.EE.C.7b	DOK 2
15	A	8.EE.A.4	DOK 1

## Illinois Practice Test | Grade 8 | Questions

Item number	Correct answer	Standard(s)	DOK
16	<p><b>Part A:</b> \$45/hour</p> <p><b>Part B:</b> <math>y = 45x + 75</math></p> <p><b>Part C:</b> \$525 for 10 hours</p>	8.F.B.4	DOK 3

## Answer Key - Unit 2

Item number	Correct answer	Standard(s)	DOK
1	D	8.EE.A.1	DOK 2
2	$y = 8x$ 	8.EE.B.5	DOK 3
3	<p><b>Part A:</b>            Angle A = <math>39^\circ</math>            Angle B = <math>60^\circ</math>            Angle C = <math>81^\circ</math></p> <p><b>Part B:</b>            Angle D = <math>81^\circ</math>            Angle B = <math>60^\circ</math>            Angle E = <math>39^\circ</math></p> <p><b>Part C:</b>            Yes, the triangles are similar because all the angles are congruent. So, through AAA they are similar.</p>	8.G.A.4 8.G.A.5	DOK 2

# Common Core State Test | Grade 8 | Answers

Item number	Correct answer	Standard(s)	DOK
4	<p><b>Part A:</b> Rate of change function A: -2 Rate of change function B: -1</p> <p><b>Part B:</b> y intercept function A: 50 y intercept function B: 50</p> <p><b>Part C:</b> Both functions are decreasing because they are linear with negative slopes.</p>	8.EE.B.6	DOK 2
5	D	8.G.A.2	DOK 2
6	C	8.F.A.3	DOK 1
7	The lines have no solution because they are parallel. They have the same slope.	8.EE.C.8b	DOK 3
8	<p><b>Part A:</b> Volume of cylinder: <math>48\pi \text{ ft}^3</math></p> <p><b>Part B:</b> <math>144\pi \text{ ft}^3</math></p> <p><b>Part C:</b> <math>\frac{48\pi}{144\pi} = \frac{48}{144} = \frac{1}{3}</math></p>	8.G.C.9	DOK 3

## Answer Key - Unit 3

Item number	Correct answer	Standard(s)	DOK
1	D	8.SP.A.1	DOK 2
2	16	8.EE.C.7a	DOK 2
3	Reflection over $y = 0$ followed by translation 2 units right	8.G.A.3	DOK 3
4	C, E	8.EE.B.5, 8.EE.B.6, 8.EE.C.8, 8.F.A.2	DOK 2
5	A' (4.5, -6) B' (-3, -6) C' (4.5, 4.5) D' (-3, 4.5)	8.G.A.3	DOK 3
6	$x = 1.2$	8.G.A.5	DOK 2
7	A, E	8.G.A.3, 8.G.B.8	DOK 2
8	Freya: Any coordinate on the line $5x - 6$ Marco: Any coordinate not on the line $5x - 6$ and is not $x = 2$ or $x = 3$ . Students may identify the function $x^2$ , but this is not required. Henry: Any coordinate with a different $y$ value for $x = 2$ or $x = 3$ .	8.F.A.1, 8.F.A.3	DOK 3






Breakdown of Assessment by domain				
The Number System (NS)	Expressions and Equations (EE)	Functions (F)	Geometry (G)	Statistics and Probability (SP)
8%	33%	31%	28%	3%

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