

# Tennessee Comprehensive Assessment Program

# TCAP

## Math Grade 8 Item Release



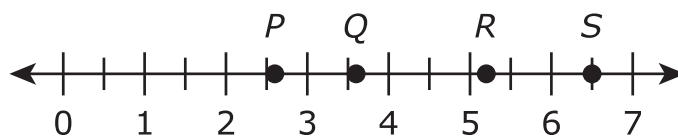
\*Standards implemented from 2023-24 Tennessee Academic Standards for Math

**00.** Exactly how many numbers in the list shown are irrational?

$$\pi, -3.14, \sqrt{8}, \frac{5}{12}, -\sqrt{16}$$

- A.** 2
- B.** 3
- C.** 4
- D.** 5

00. The number line shows four points.



Which point is closest to the value of  $\sqrt{13}$ ?

- A.  $P$
- B.  $Q$
- C.  $R$
- D.  $S$

**00.** What is the value of the expression?

$$4^3 \cdot 4^{-6}$$

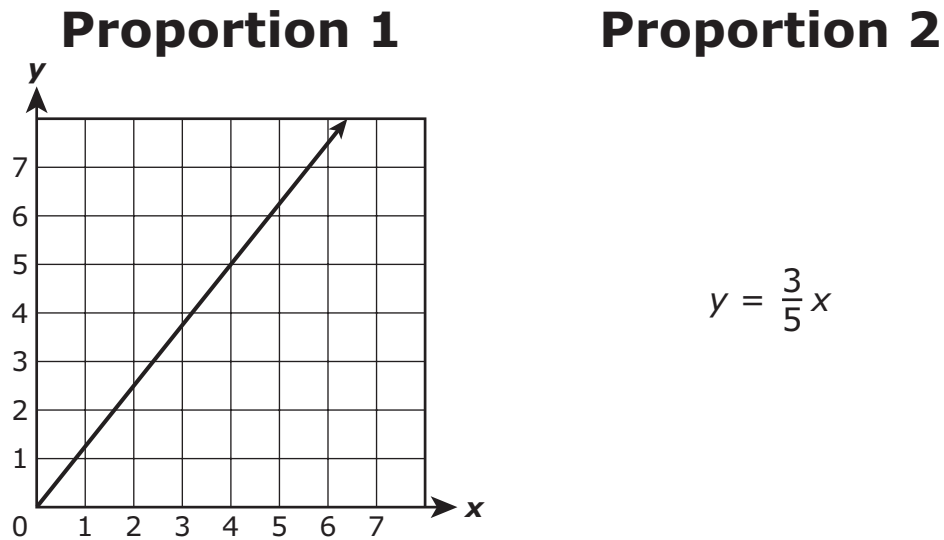
**A.** 64

**B.**  $\frac{1}{64}$

**C.**  $\frac{1}{16}$

**D.** 16

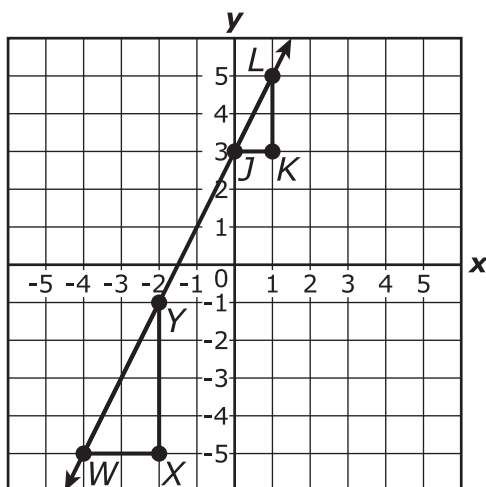
00. Two proportions are given.



Which statement is true about the proportions?

- A.** Proportion 1 has a greater slope.
- B.** Proportion 2 has a greater slope.
- C.** The slopes of the proportions are equal.
- D.** The proportions have an equal  $y$  value when  $x = \frac{4}{3}$ .

- 00.** On the coordinate grid shown, triangles  $WXY$  and  $JKL$  are similar.



What is the slope of the line that passes through segment  $WL$ ?

- A.**  $\frac{1}{3}$
- B.**  $\frac{1}{2}$
- C.**  $\frac{2}{1}$
- D.**  $\frac{3}{1}$

**00.** Which equations have no real solution?

Select the **two** correct answers.

**A.**  $3x - 5 = 3x + 5$

**B.**  $3x - 5 = 3x - 5$

**C.**  $3(x + 3) = 3(x - 2)$

**D.**  $-4(x + 3) = -5(x + 2)$

**E.**  $5(x + 3) = -5(x + 2)$

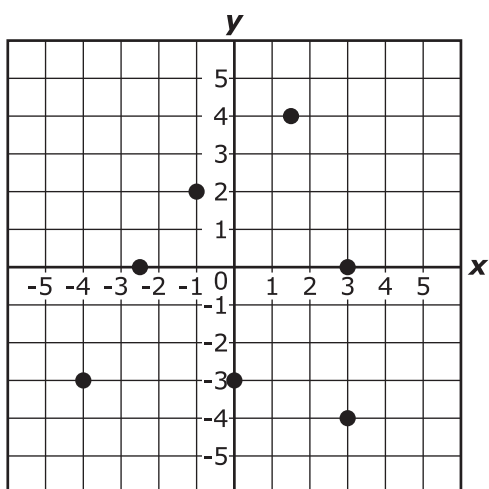
**00.** What value of  $y$  satisfies the equation  $\frac{2}{3}(y + 6) = \frac{1}{3}y + 7$ ?

- A.** 1
- B.** 3
- C.** 6
- D.** 9

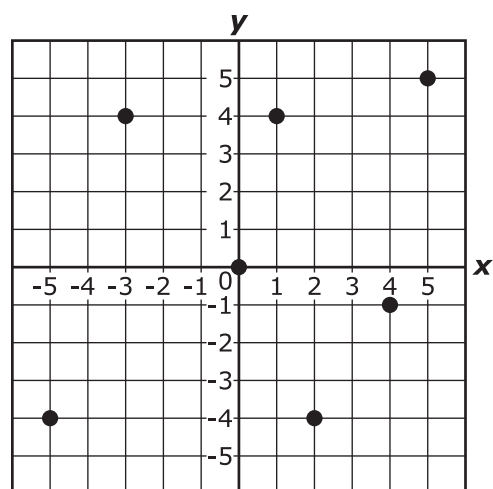


00. Which graph does **not** show  $y$  as a function of  $x$ ?

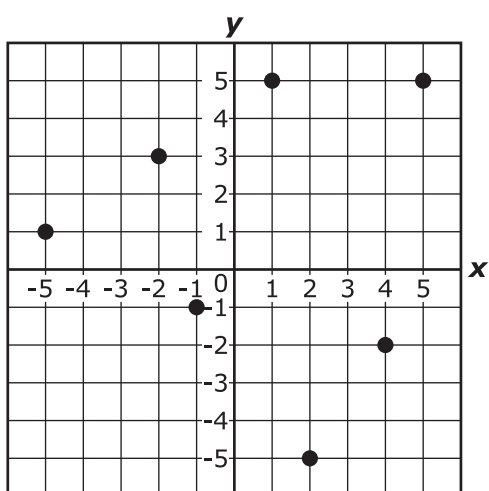
A.



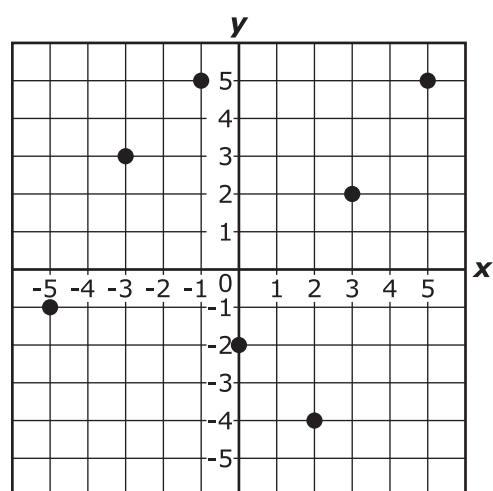
C.



B.



D.



- 00.** Bicycles are available for rent at a state park. The cost to rent a bicycle consists of an initial fee plus a charge for each hour. The table shows the total cost to rent a bicycle for a certain number of hours.

**Bicycle Rental**

<b>Number of Hours, <math>h</math></b>	<b>Total Cost (dollars), <math>t</math></b>
2	18
4	34
6	50
8	66
9	74

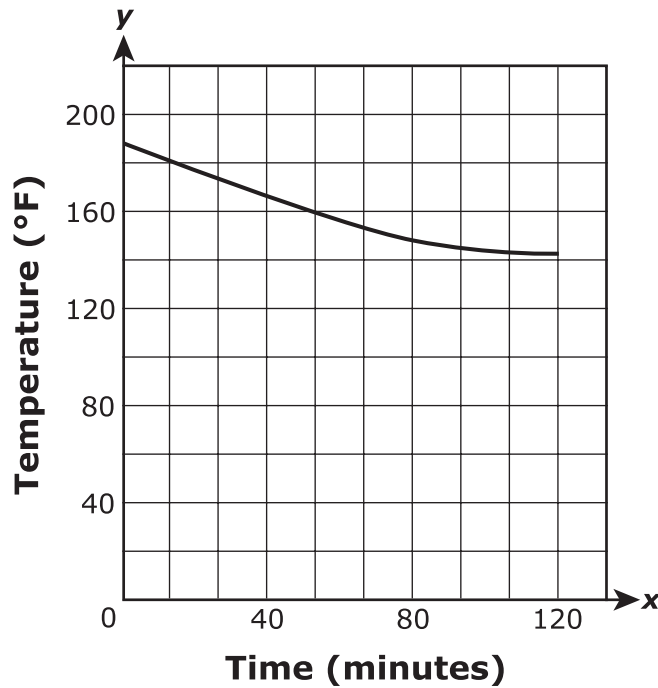
Which statements about the cost to rent a bicycle at this state park are true?

Select the **two** correct answers.

- A.** The initial fee to rent a bicycle is \$8.
- B.** The initial fee to rent a bicycle is \$2.
- C.** The hourly rate to rent a bicycle is \$8.
- D.** The hourly rate to rent a bicycle is \$2.
- E.** The total cost to rent a bicycle for 10 hours is \$80.

00. The graph shows the relationship between the temperature of a casserole, in degrees Fahrenheit, and the number of minutes since the casserole was removed from the oven.

### Temperature vs. Time



Which terms **best** describe the relationship shown in the graph?

- A. increasing and linear
- B. decreasing and linear
- C. increasing and nonlinear
- D. decreasing and nonlinear

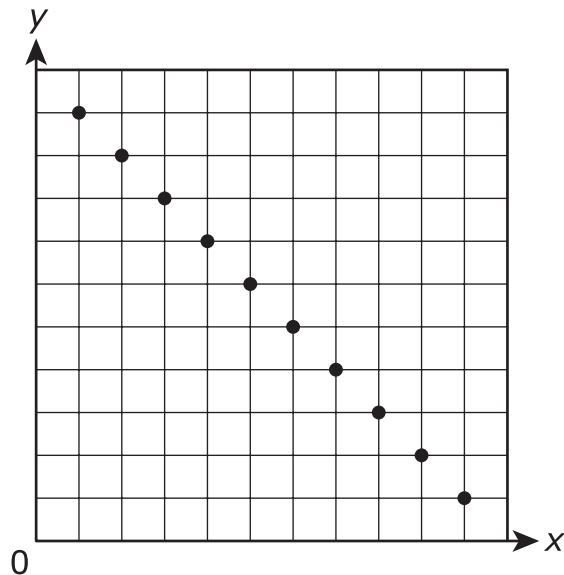
- 00.** A right triangle  $ABC$  has side lengths that are all whole numbers. Which sets could be the side lengths for this triangle?

Select the **three** correct answers.

- A.** 3, 4, 5
- B.** 5, 12, 13
- C.** 9, 16, 25
- D.** 10, 20, 30
- E.** 12, 35, 37

- 00.** Which value is closest to the distance between the points  $(-1, 9)$  and  $(5, 8)$  on a coordinate plane?
- A.** 2.6
  - B.** 6.1
  - C.** 10.4
  - D.** 17.5

00. A scatter plot is shown.

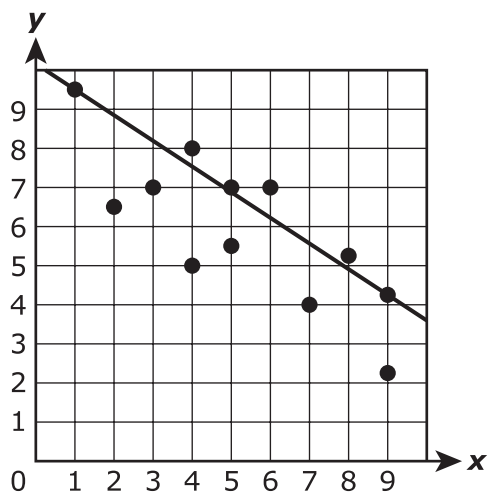


Which situation **best** describes this scatter plot?

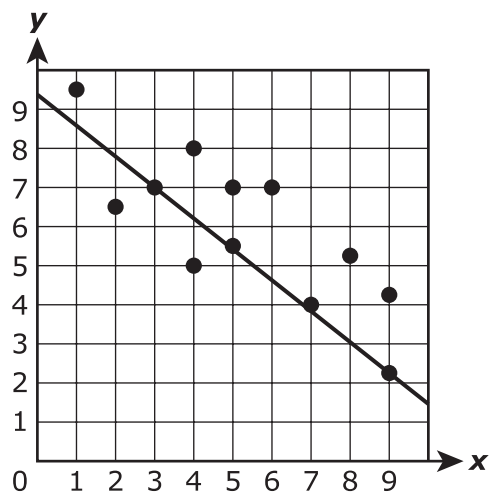
- A. the relationship between  $y$ , the number of employees at a shoe store and  $x$ , the number of shoes that are on sale
- B. the relationship between  $y$ , test scores of the students in Mr. Elizondo's class and  $x$ , the number of minutes they studied
- C. the relationship between  $y$ , the number of gallons of gasoline in a car with a full tank of gasoline and  $x$ , the number of miles the car has been driven
- D. the relationship between  $y$ , the number of gallons of water in a swimming pool and  $x$ , the number of minutes water is being poured into the pool

00. Which graph shows a line of best fit for the data?

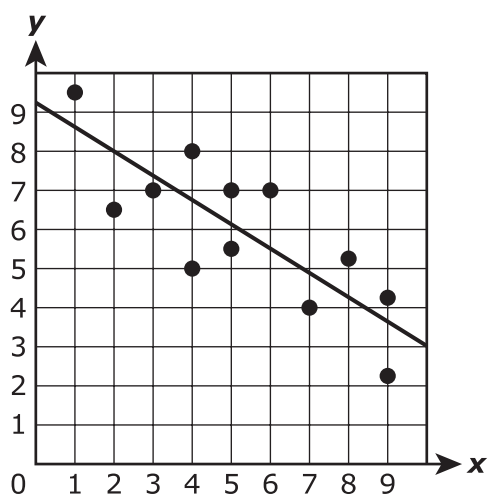
A.



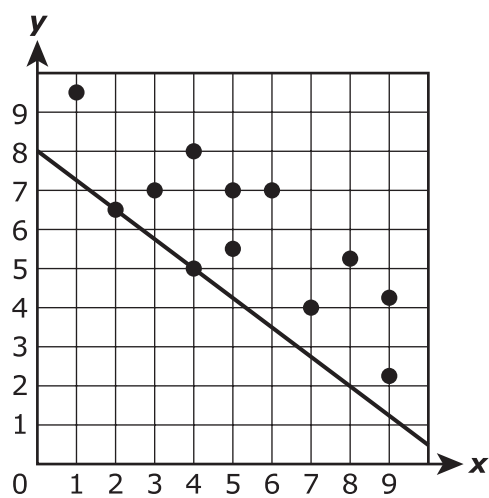
C.



B.



D.



- 00.** Four colored chips are in a bag. One chip is red, one chip is yellow, and two chips are blue. A chip is selected, put back in the bag, and then another chip is selected.

Which statements are true?

Select the **two** correct answers.

- A.** The probability of getting two red chips is 0.
- B.** The probability of getting two yellow chips is  $\frac{1}{16}$ .
- C.** The probability of getting two blue chips is  $\frac{1}{2}$ .
- D.** The probability of getting two blue chips is  $\frac{1}{4}$ .
- E.** The probability of getting a red and a blue, in either order, is  $\frac{1}{16}$ .



## Metadata- Math

### Items

Page Number	UIN	Grade	Item Type	Key	DOK	TN Standards	Calculator
1	TN0069383	8	MC	A	1	8.NS.A.1	N
2	T8M03S388	8	MC	B	2	8.NS.A.2	N
3	T8M03S239	8	MC	B	1	8.EE.A.1	N
4	T8M03S293	8	MC	A	2	8.EE.B.5	Y
5	T8M03S621	8	MC	C	1	8.EE.B.6	Y
6	TN0069331	8	MS	A,C	2	8.EE.C.7a	Y
7	T8M03S257	8	MC	D	1	8.EE.C.7b	Y
8	T8M03S500	8	MC	A	1	8.F.A.1	Y
9	TN0069398	8	MS	B,C	2	8.F.B.4	Y
10	T8M03S151	8	MC	D	1	8.F.B.5	N
11	TN0014602	8	MS	A,B,E	2	8.G.B.3	Y
12	TN0081291	8	MC	B	2	8.G.B.5	Y
13	TN0069333	8	MC	C	2	8.SP.A.1	N
14	T8M03S693	8	MC	B	2	8.SP.A.2	Y
15	TN942866	8	MS	B,D	3	8.SP.B.4a	Y

### Metadata Definitions:

<b>UIN</b>	Unique letter/number code used to identify the item.
<b>Grade</b>	Grade level or Course.
<b>Item Type</b>	Indicates the type of item. MC= Multiple Choice; MS= Multiple Select; FIB = Fill-in-the-blank
<b>Key</b>	Correct answer.
<b>DOK</b>	Depth of Knowledge (cognitive complexity) is measured on a three-point scale. 1 = Recall or simple reproduction of information; 2 = Skills and concepts: comprehension and processing of text; 3 = Strategic thinking, prediction, elaboration.
<b>TN Standards</b>	Primary educational standard assessed.
<b>Calculator</b>	Y for items that permit calculator use.

\*Standards implemented from 2023-24 Tennessee Academic Standards for Math