1. Four numbers are shown.

	rat	rat	
π	$\sqrt{8}$	$0.\overline{23}$	$\sqrt{49}$

irrational → π; irr ($\sqrt{8}$); repeating ($0.\overline{23}$); $\sqrt{49}=7$

Complete the statement explaining which two numbers are rational. For each box, fill in the bubble before the pair of numbers or word that is correct.

The two rational numbers are

- Ⓐ π and $\sqrt{8}$
- Ⓑ π and $0.\overline{23}$
- Ⓒ $\sqrt{8}$ and $\sqrt{49}$
- ● Ⓓ $0.\overline{23}$ and $\sqrt{49}$

because they

- ● Ⓐ can
- Ⓑ cannot

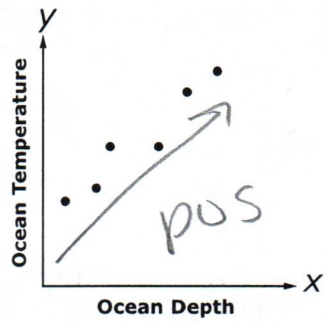
be expressed as a ratio of two integers.

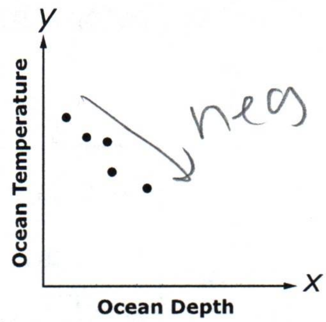
irrational- long non repeating decimal

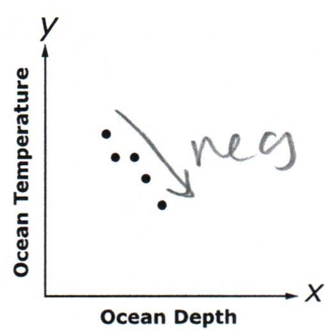
rational- integers, repeating/pattern decimal

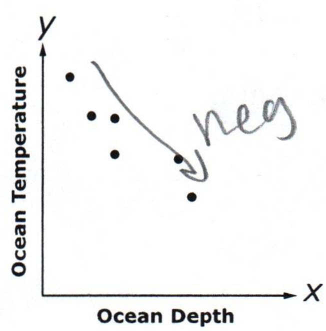
2. Gia records the temperature of ocean water at different depths and finds that the relationship between temperature and depth have a negative association.

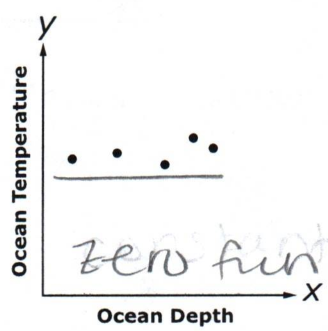
Select all the scatter plots that could represent Gia's data.

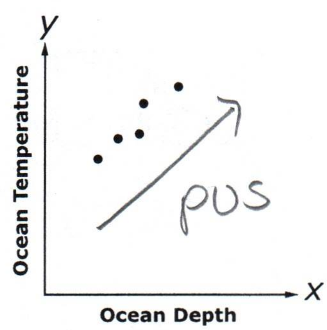
Ⓐ


Ⓒ


Ⓔ


Ⓑ


Ⓓ


Ⓕ


puff puff
positive

niceee
negative

Go On

3. An expression is shown.

$$\left(\frac{-1}{2}\right)^3 + \sqrt{8^2 - 15}$$

What is the value of the expression?

Ⓐ $6\frac{7}{8}$

Ⓑ $7\frac{1}{8}$

Ⓒ $48\frac{7}{8}$

Ⓓ $49\frac{1}{8}$

$$\left(-\frac{1}{2}\right)^3 + \sqrt{8^2 - 15}$$

$$64-15$$

$$\left(-\frac{1}{2}\right)^3 + \sqrt{49}$$

$$-\frac{1}{8} + 7$$

$$6\frac{7}{8}$$

4. An expression is shown.

$$(2.3 \times 10^4) \times (4.1 \times 10^2)$$

Write your response in the shaded box below and fill in the bubble before the correct power of 10 to show the value of the expression in scientific notation.

9.43	×	Ⓐ 10^2 Ⓑ 10^4 ● 10^6 Ⓓ 10^8

$2.3 \times 10^4 = 23000$

$4.1 \times 10^2 = 410$

$23000 \cdot 410 = 9430000$

move decimal 6 times to left so exponent is positive 6

5. Fill in bubbles to identify the number of solutions to each equation.

	No Solutions	One Solution	Infinitely Many Solutions
$3x - 5 = 3(x - 2) + 1$	Ⓐ	Ⓑ	●
$3x - 5 = -9x + 15$	Ⓓ	●	Ⓕ
$3x - 5 = 3x + 10$	●	Ⓗ	Ⓘ

$3x-5 = 3(x-2)+1$

$3x - 6 + 1$

$3x-5 = 3x-5$ ✓ equal same slope, same y int

$3x-5 = -9x+15$ diff slope

$3x-5=3x+10$ same slope diff y int

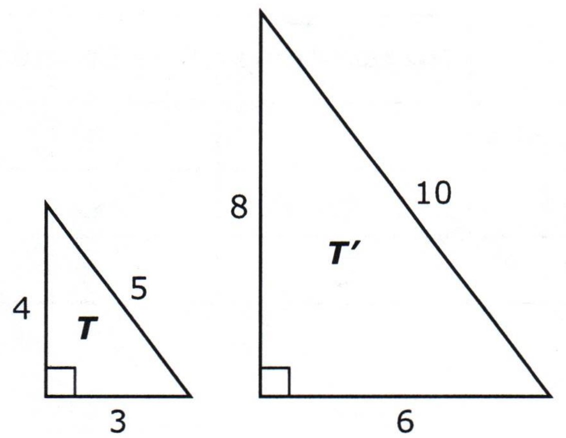
no solution: same slope diff y int (parallel lines)

inf many: lines are the same - same slope same y int

one solution: different slope

Go On

6. The transformation of triangle T to triangle T' is shown.



Select a word and a value to complete the description of the transformation. For each blank, fill in the bubble **before** the word or value that is correct.

Triangle T is _________ [Ⓐ congruent Ⓑ similar] to triangle T'.

Triangle T can be transformed to triangle T' using a dilation with a scale factor of _________ [Ⓐ $\frac{1}{2}$ Ⓑ 2 Ⓒ 4].

congruent → same
similar → gets bigger or smaller

$4 \cdot 2 = 8$
$3 \cdot 2 = 6$
$5 \cdot 2 = 10$
scale factor

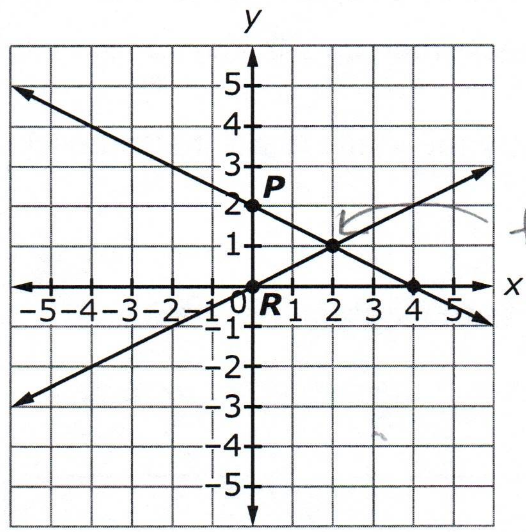
Go On

7. A system of equations is shown.

$$y = \frac{1}{2}x$$

$$y = -\frac{1}{2}x + 2$$

Kayla graphs the system to solve it. She marks her solutions with *P* and *R*.



this is the solution

the solution is where the two lines intersect

Go On

This question has **two** parts.

Part A

Which statement describes Kayla's solutions?

- Ⓐ Her solutions are correct.
- Ⓑ She marked the y-intercepts instead of the x-intercepts.
- Ⓒ She marked the y-intercepts instead of the intersection point of the two lines.
- Ⓓ She marked only the y-intercepts instead of the x- and y-intercepts.

Part B

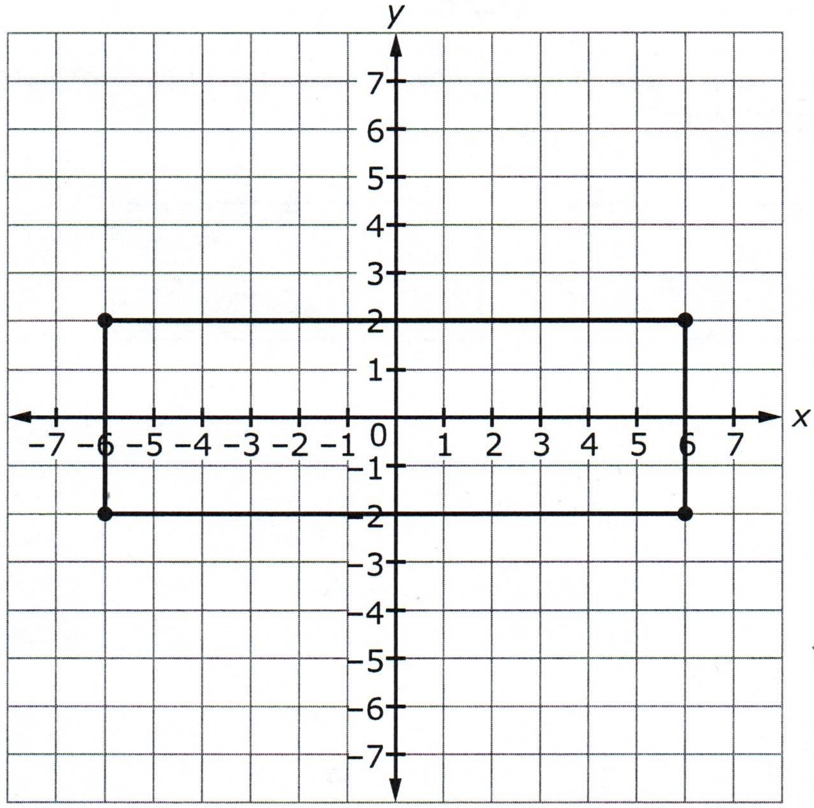
What is a solution to the system of equations?

Write your responses in the shaded boxes below.

(2 , 1)

Go On

8. A figure on a coordinate plane is shown.



Select all the transformations that will map the figure onto itself.

meaning will it overlap itself

almost always means there is more than one correct answer

Ⓐ translation up 4 units

Ⓑ reflection across the y-axis

Ⓒ dilation by a factor of 3 about the origin gets bigger by 3

Ⓓ rotation 90 degrees clockwise about the origin

Ⓔ rotation 180 degrees counterclockwise about the origin

translation up 4 means the entire thing moves up 4

reflection on y axis

9. An expression is shown.

distribute

$$(1.3x)(2.6x + 4)$$

Write your responses in the shaded boxes below to complete the product of the expression.

3.38	x^2 +	5.2	x

$1.3x(2.6x+4)$

$3.38x^2+5.2x$