INTERIM #2

1 The school nurse at a high school wants to create a scatter plot that shows the age and height of all the students in the school.
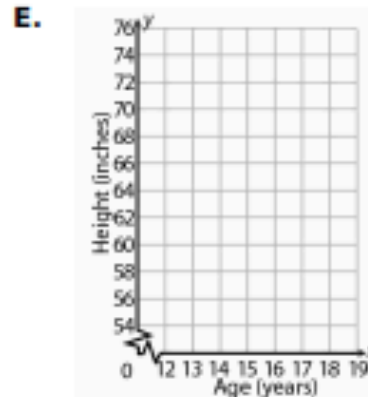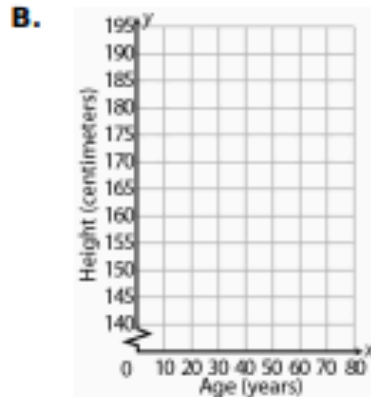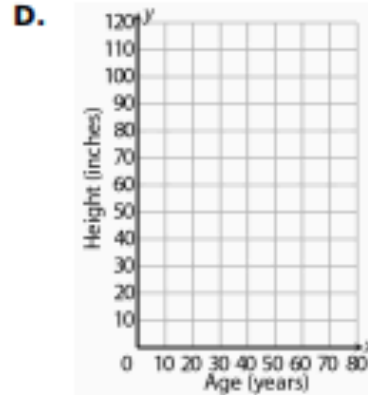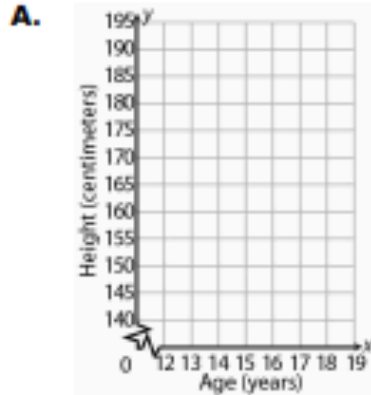
Which of these axes would work well for the nurse's scatter plot? Choose all that are correct.

A.

Height (centimeters): 140, 145, 150, 155, 160, 165, 170, 175, 180, 185, 190, 195
Age (years): 12 13 14 15 16 17 18 19

D.

Height (inches): 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120
Age (years): 10 20 30 40 50 60 70 80

B.

Height (centimeters): 140, 145, 150, 155, 160, 165, 170, 175, 180, 185, 190, 195
Age (years): 10 20 30 40 50 60 70 80

E.

Height (inches): 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76
Age (years): 12 13 14 15 16 17 18 19

C.

Height (inches): 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120
Age (years): 12 13 14 15 16 17 18 19

F.

Height (inches): 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76
Age (years): 10 20 30 40 50 60 70 80

✏ Question 2

Population density is defined as the number of population members per unit of population area.

Select Yes or No to indicate if the measurement unit given is an appropriate measurement unit for population density.

Measurement Unit	Yes	No
people per square mile	○	○
worms per inch	○	○
square feet per house	○	○
cells per square centimeter	○	○
coyotes per kilometer	○	○

3 Jason's current age is $\frac{1}{4}$ his mom's current age. In 16 years, Jason's age will be $\frac{1}{2}$ his mom's age. The equation below can be used to determine x, Jason's current age.

$$x + 16 = \tfrac{1}{2}(4x + 16)$$

What is Jason's current age, in years?

A. 2 years

B. 8 years

C. 12 years

D. 16 years

✏️ Question 4

What is the result of solving this equation for *x*?

$$\frac{x}{a} + y = b$$

Use the on-screen keyboard to type the correct equation into the box below.

$x = \boxed{}$

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5 | **Diane deposited $1,000 into a checking account.**

- Each week she withdraws $25 from the account.
- She makes no other deposits or withdrawals.
- The amount of money remaining in the bank account is a function of the number of weeks that have passed.

What is the domain that relates to the function that represents this situation?

A. All real numbers between 0 and 40

B. All real numbers between 0 and 1,000

C. All integers divisible by 25 from 0 to 1,000

D. All integers from 0 to 40

6 To measure how much gasoline she uses on her road trip, Hortense makes a graph that shows the amount remaining in the tank as a function of the miles she has driven (see figure).
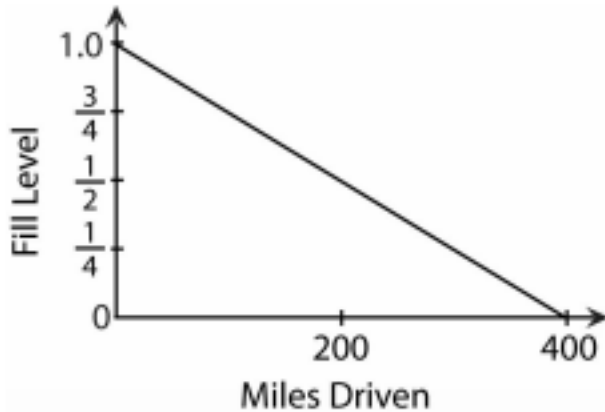
**Which of the following is the domain for this function?**

A. positive integers from 0 to 400

B. all real numbers

C. positive real numbers from 0 to 400

D. real numbers from 0 to 1

✏ Question 7

Given the function $y = -\frac{1}{3}x + 2$,

- Use the line tool to graph the function in the coordinate plane;
- Use the point tool to place a point on the line representing the *x*-intercept of the function.

To graph a line, determine two points on the line (NOT the x-intercept) and click on those points. Then choose the point tool and click on the x-intercept. You must graph only the line with its two points and one point for the x-intercept. Any other graphed lines or points will cause your response to be scored as incorrect.

| Line	● Point		← Undo	→ Redo	× Reset
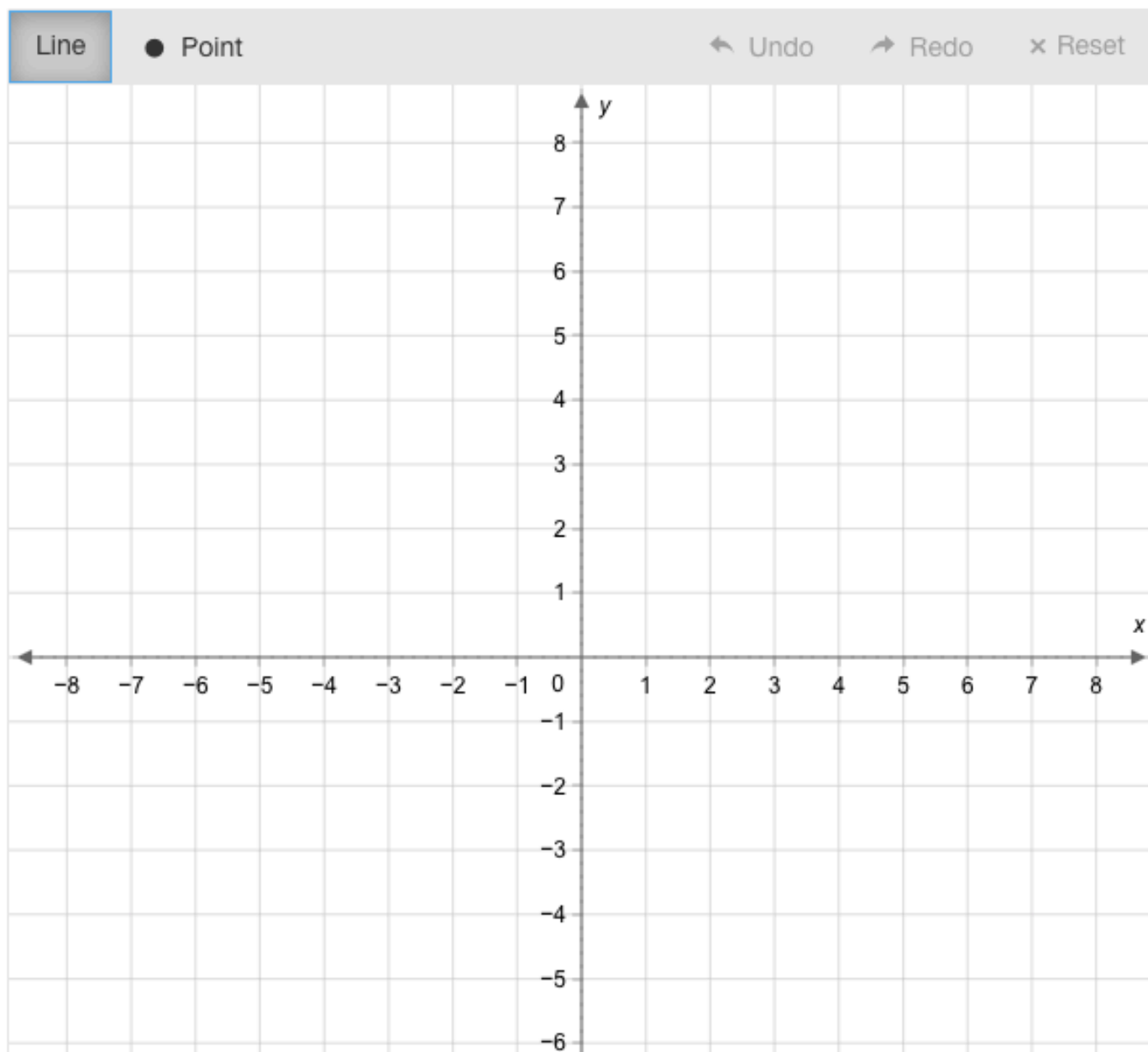
✏️ Question 8

Angie works x hours babysitting for \$12 an hour. She works y hours at a coffee shop for \$10 per hour. One week she earns a total of \$120. The hours she worked are represented by the equation below.

$$12x + 10y = 120$$

Graph the equation using the x- and y-intercepts on the graph below. Graph using ONLY the intercepts.

You must graph the line using only these two points; any other graphed points will cause the line to be scored as incorrect.
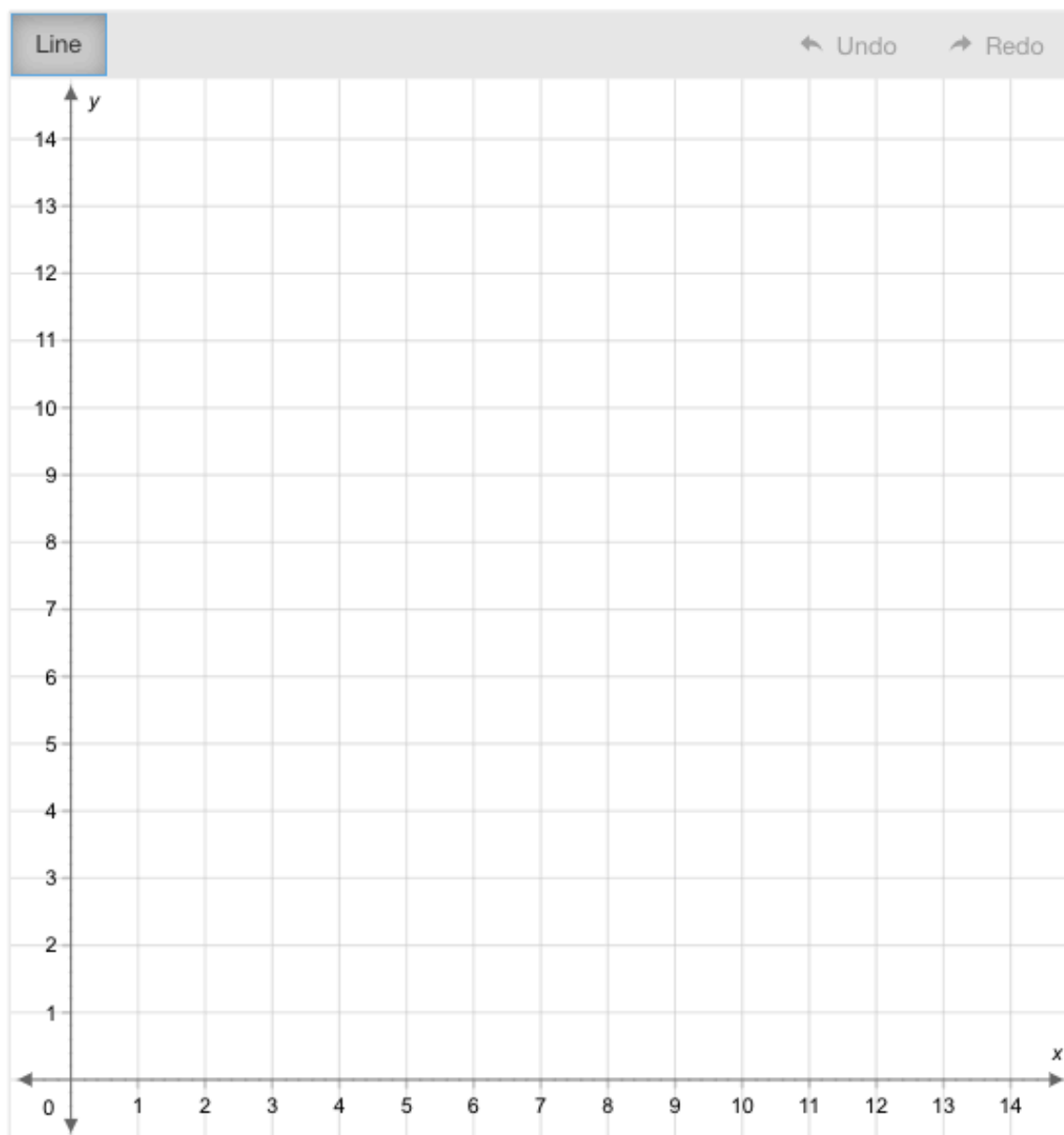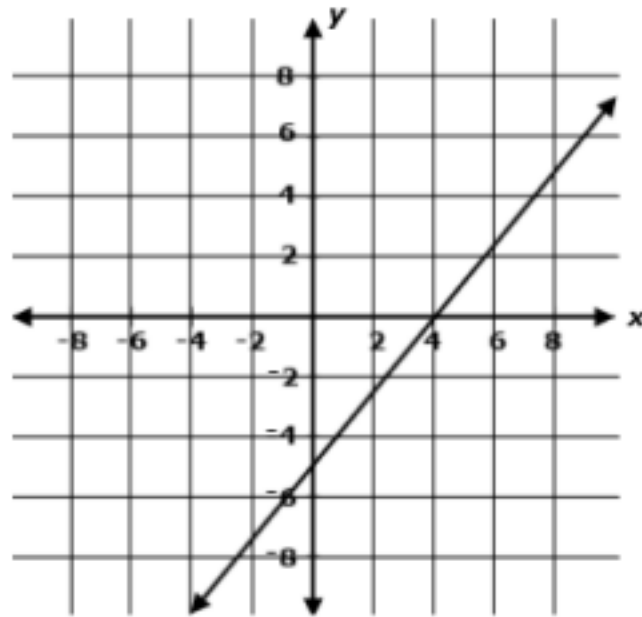
Line	← Undo	→ Redo

✏ Question 9

A linear equation is graphed below. One of the solutions to the linear equation is $(x, 6)$. Given $(x, 6)$, what would the value of the x-coordinate be? Enter the x-coordinate in the response box.
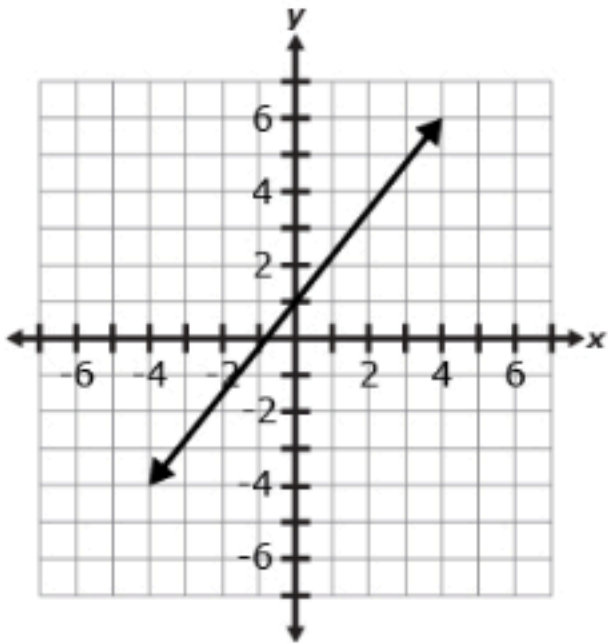
$x =$ ⬚

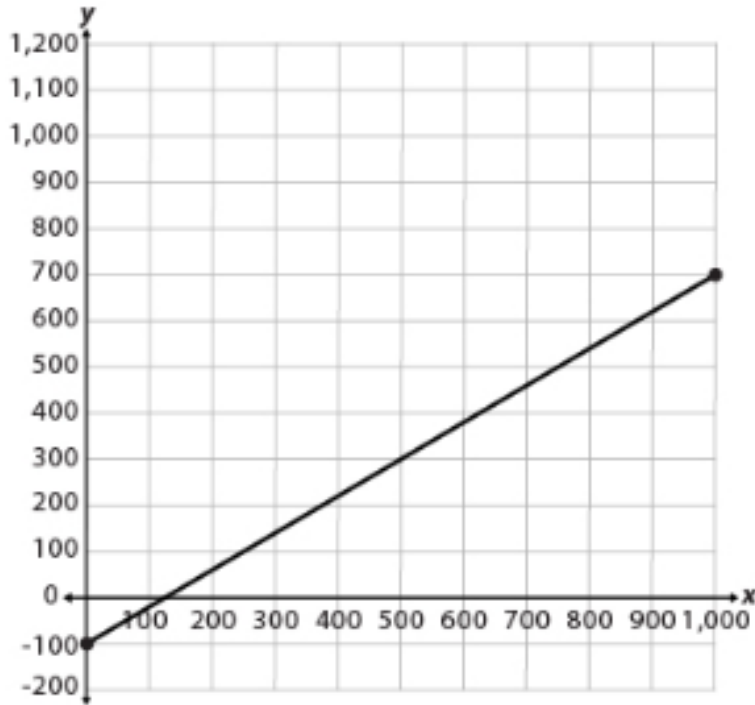**10** **Select the ordered pair that is MOST LIKELY a solution to the equation represented by the graph.**

A. $(-4, -10)$

B. $(-2, 3)$

**C.** $(0, 4)$

**D.** $(5, 8)$

✏️ Question 11

A school science club raises money by selling candy bars. This graph shows the profit, in dollars, from the club's fundraiser as a function of the number of candy bars sold, x.

Determine whether each statement is true according to the graph. Select True or False for each statement.

Statement	True	False
The club's profit increases as more candy bars are sold.	○	○
The club has to sell 100 candy bars to cover the cost of the fundraiser.	○	○
The y-intercept represents the number of dollars the club spent on the fundraiser.	○	○

12 A bus is traveling 500 miles at a constant speed of 55 miles per hour. Which graph represents n , the number of miles REMAINING on the trip, as a function of t , the number of hours traveled?

A.

C.

B.

D.
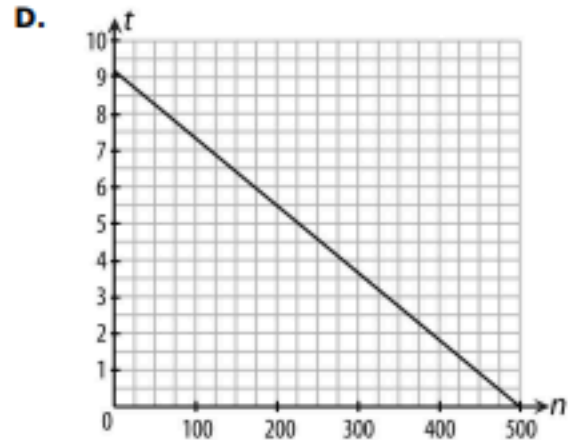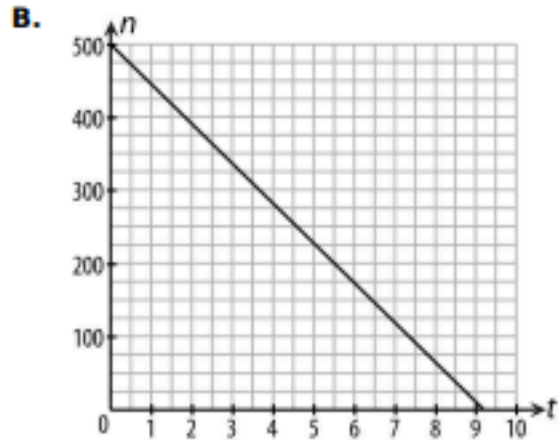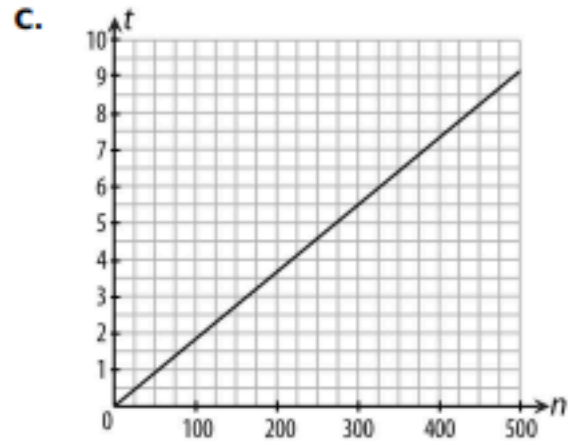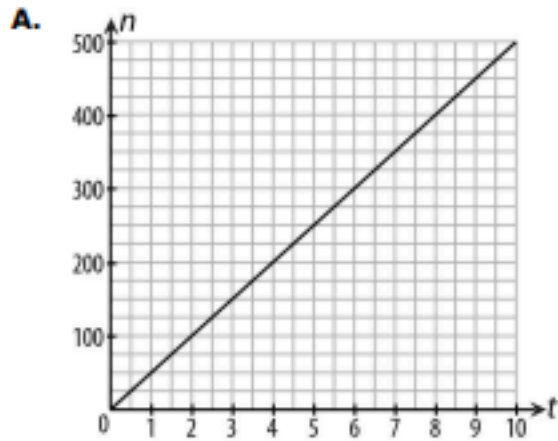
13 **Jayden correctly solved the equation below.**

$$\frac{x}{3} - 2 = \frac{1}{4}$$

Which of the following is a valid first step in the solution process?

A. Subtract $\frac{1}{4}$ from both sides of the equation to get $\frac{x}{3} - \frac{7}{4} = 0$.

B. Multiply the equation by 12 to get $4x - 24 = 3$.

C. Multiply the equation by 3 to get $x - 2 = \frac{3}{4}$.

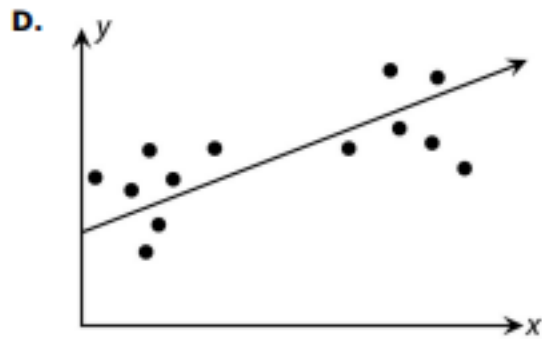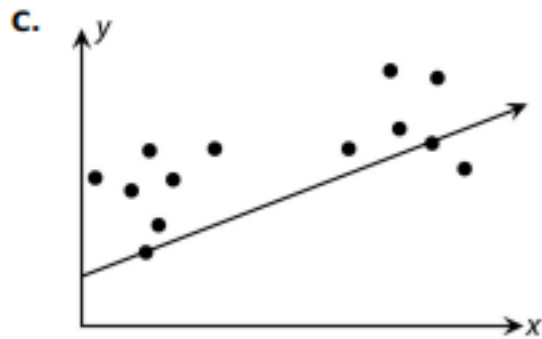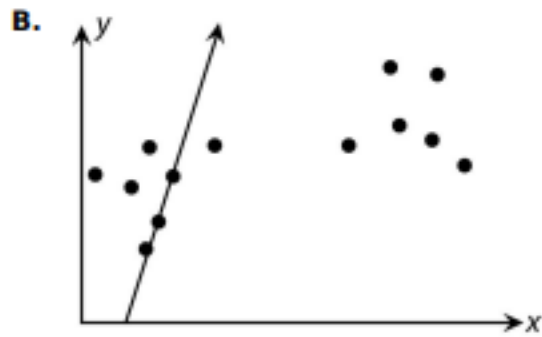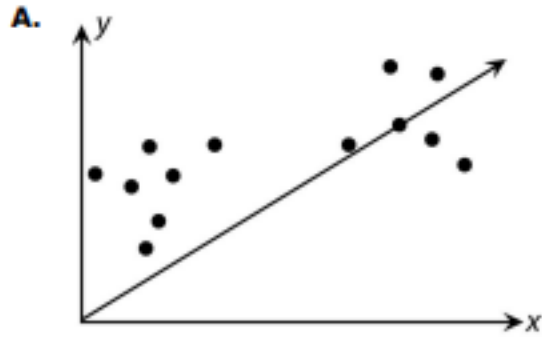**D.** Subtract 2 from each side to get $\frac{x}{3} = -\frac{7}{4}$.

14 **Miguel solved an equation incorrectly, as shown below.**

Given:	$2(x-3)-(x+4)=15$
Step 1:	$2x-6-x-4=15$
Step 2:	$2x-x-6-4=15$
Step 3:	$x-10=15$
Step 4:	$x-10-10=15-10$
Answer:	$x=5$

When did Miguel first make a mistake?

A. from the given to step 1

B. from step 1 to step 2

C. from step 2 to step 3

D. from step 3 to step 4

15 **Which line best models the data in the scatter plot?**

A.

B.

C.

D.

16 **Mr. and Mrs. Miller own a bakery. They kept track of the profit for their bakery in the first six months that the bakery was open. The data is shown in the table below.**

Month (*m*)	Profit (*P*), in dollars
1	2411
2	2753
3	3125
4	3629
5	3981
6	4394

The best-fit line that models the data is $P = 402.94m + 1971.9$. How much profit can the Millers expect from the bakery in their twelfth month of operation? Explain how you determined your answer.
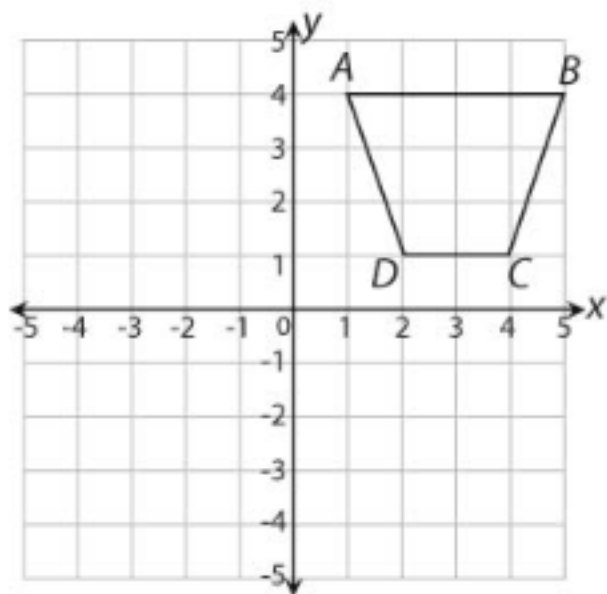
17   **A parallelogram is shown below.**
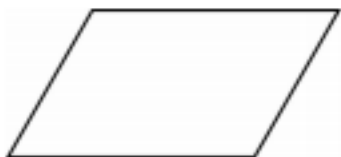
How many lines of symmetry does this parallelogram have?

A.   0

B.   2

C.   4

D.   8

✎ Question 18

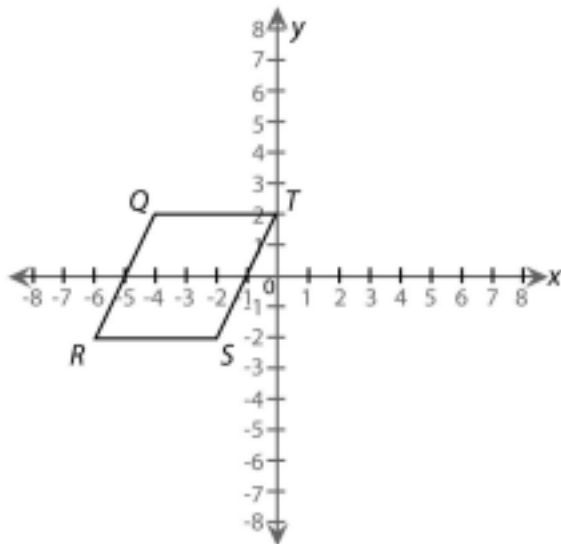The coordinate plane below shows the location of isosceles trapezoid *ABCD*.

Trapezoid *ABCD* is reflected across a line onto itself. What is the equation for that line?

Use the on-screen keyboard to type the correct equation in the box.

19 **A parallelogram is shown on the coordinate plane below.**

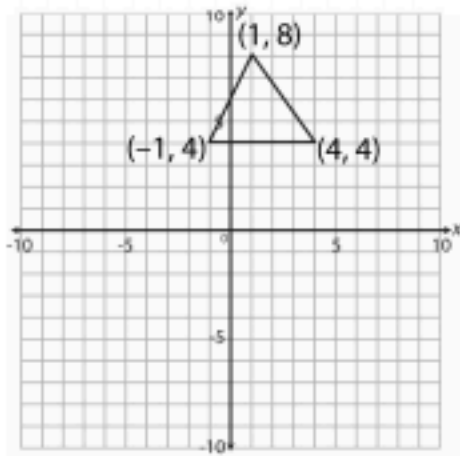**The following transformations are to be performed, in order, on the parallelogram.**

- Translate 2 units in a positive y-direction.
- Translate 6 units in a positive x-direction.
- Reflect about the x-axis.

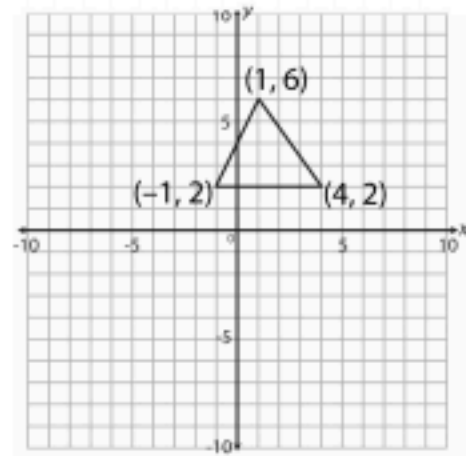**Which of the following describes the location of vertex Q after the transformations?**

A. $(2, -4)$

B. $(-2, -8)$

C. $(-2, 4)$

D. $(2, -8)$

20 A triangle in the *xy*-plane is represented by the points $(-2, 4)$, $(0, 8)$, and $(3, 4)$. If the transformation $T(x, y) \rightarrow (x + 1, y - 2)$ is applied to this figure, which of these will be the result?
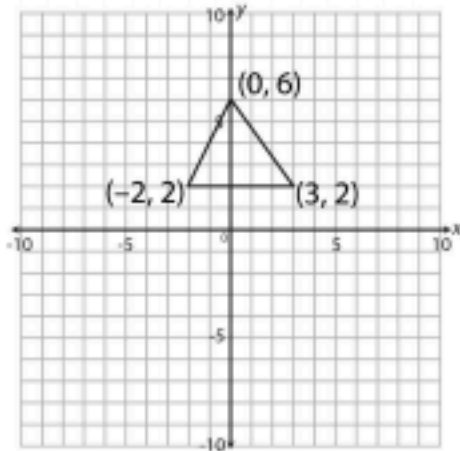
A.

(1, 8)

(−1, 4)　　(4, 4)

C.

(1, 6)

(−1, 2)　　(4, 2)

B.

(0, 6)

(−2, 2)　　(3, 2)

D.

(−2, 9)

(−4, 5)　　(1, 5)