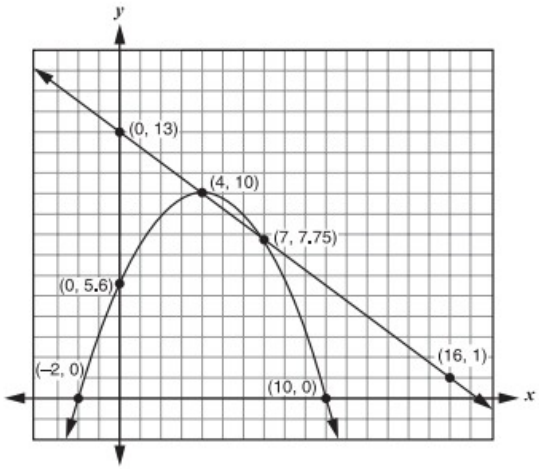
Algebra Quick Quiz 01102024

Question 1.

A system of equations is graphed below.



What are the solutions to the system?

A. (0, 5.6) and (0, 13)

B. (0, 13) and (16, 1)

C. (4, 10) and (7, 7.75)

D. (16, 1) and (10, 0)

Question 2

Which of the following are factors of the equation when written in factored form? Select all that apply.

$$2a^2 + 8a - 15 = 3a - 3$$

A. $a - 4$

B. $a + 4$

C. $2a - 9$

D. $2a - 3$

E. $2a + 3$

F. $2a + 9$

Question 3.

Kelli recorded the amount of money she earned, *y*, for hours worked, *x*, in the table shown. Select the words that correctly complete the sentences.

Hours Worked (x)	Dollars Earned (y)
1	$15
3	$45
4	$60

The function is _____.

- ○ increasing
- ○ decreasing

The function is _____.

- ○ linear
- ○ quadratic
- ○ exponential

The *y*-intercept is _____.

- ○ (1, 15)
- ○ (0, 1)
- ○ (0, 0)

Question 4.

The formula for the area of a trapezoid is $A = \frac{1}{2}(b_1 + b_2)h$. Solve for b_1. Which equation is a correct value for b_1?

A. $b_1 = \frac{(2A - b_2)}{h}$

B. $b_1 = \frac{2A}{h} - b_2$

C. $b_1 = \frac{A}{2h} - b_2$

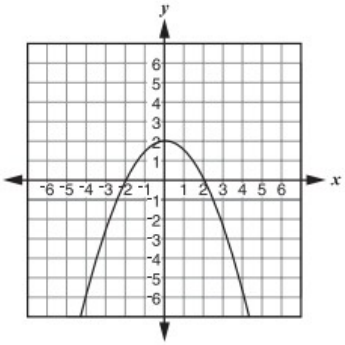
D. $b_1 = \frac{\frac{1}{2}A - b_2}{h}$

Question 5.

The area, in square units, of a rectangle is represented by $6x^3 - 2x^2 + 4x$. If the width, in units, is $2x$, what is the length, in units?

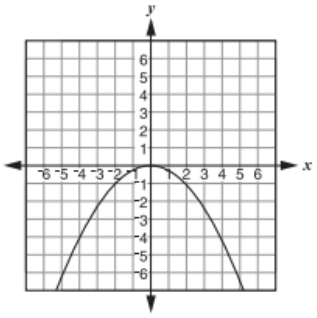
Question 6.

This is the graph of $y = f(x)$.

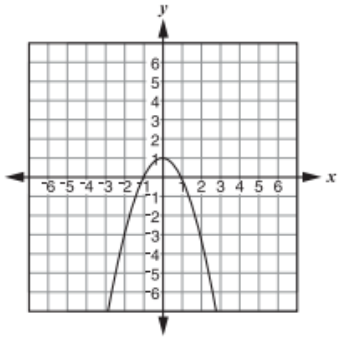


Which of the following is the graph of $y = 2f(x) - 1$?

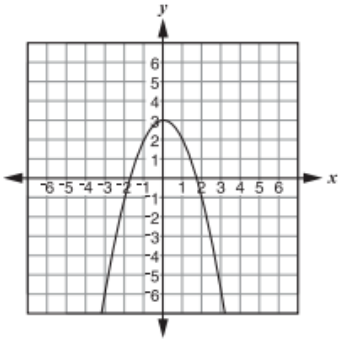
A.



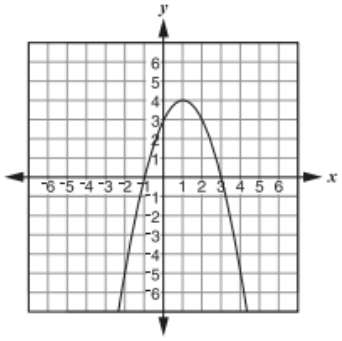
C.



B.

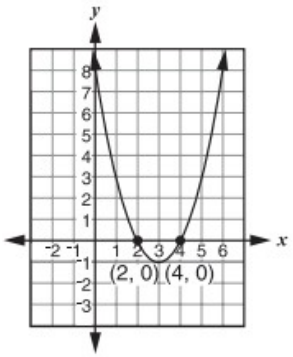


D.



Question 7.

Which of the equations are represented by the graph shown? Select all that apply.



A. $y = (x - 2)(x - 4)$

B. $y = (x - 3)^2 - 1$

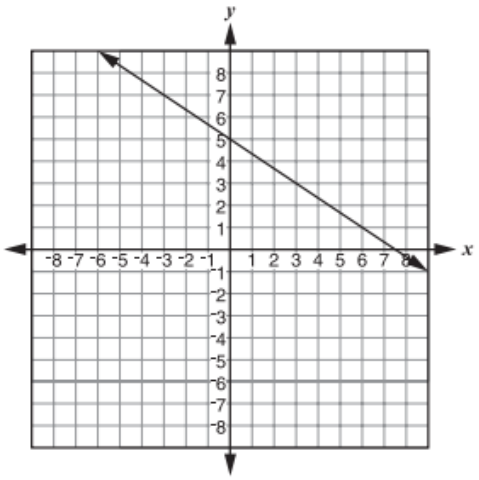
C. $y = (x - 3)^2 + 1$

D. $y = x^2 - 6x + 8$

E. $y = x^2 + 6x + 8$

Question 8.

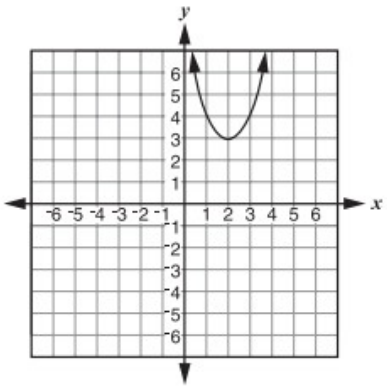
The graph of a linear equation is shown.



What equation represents the graph shown?

Question 9.

The quadratic function $f(x)$ is shown in the graph below.



If the graph of $f(x)$ is moved left 4 units and down 2 units, what would be the equation for the new graph in vertex form?

A. $f(x) = (x - 4)^2 - 2$

B. $f(x) = (x - 1)^2 + 2$

C. $f(x) = (x + 4)^2 - 2$

D. $f(x) = (x + 2)^2 + 1$

Question 10.

The following function was used to calculate the profit generated by selling T-shirts.

Let $f(x) = 15x - 25$ represent the profit function and x represent the number of T-shirts sold. Which statement is true of $f(200)$?

A. It results in 15 and means that 15 T-shirts were sold.

B. It results in 15 and means that $15 was made in profit.

C. It results in 2,975 and means that 2,975 T-shirts were sold.

D. It results in 2,975 and means that $2,975 was made in profit.

Bonus Question

Question 11 a.

Which situation can be modeled by a linear function?

A. The cost of living in a particular city doubles every 10 years.

B. Repeat customers of a neighborhood restaurant receive a coupon for $10 off a purchase of $100.

C. A real estate developer plans to increase the number of businesses in a shopping district by 15%.

D. The employees at a local hardware store earn a $2-per-hour wage increase every year they work for the store.

Question 11 b.

The cost of renting a car from Big Cars includes an administration fee and a fee for each mile driven. This is modeled by $f(x) = 0.23x + 30$.

What is the cost per mile?

A. $0.23

B. $0.53

C. $30.00

D. $30.23