Algebra 1 Quick quiz03022023

Question 1.

Which expression is equivalent to $x^2 + 5x - 6$?

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

(2) $(x + 2)(x - 3)$

(3) $(x - 6)(x + 1)$

(4) $(x + 6)(x - 1)$

Question 2

A satellite television company charges a one-time installation fee and a monthly service charge. The total cost is modeled by the function $y = 40 + 90x$. Which statement represents the meaning of each part of the function?

(1) y is the total cost, x is the number of months of service, \$90 is the installation fee, and \$40 is the service charge per month.

(2) y is the total cost, x is the number of months of service, \$40 is the installation fee, and \$90 is the service charge per month.

(3) x is the total cost, y is the number of months of service, \$40 is the installation fee, and \$90 is the service charge per month.

(4) x is the total cost, y is the number of months of service, \$90 is the installation fee, and \$40 is the service charge per month.

Question 3.

If $4x^2 - 100 = 0$, the roots of the equation are

(1) -25 and 25

(2) -25, only

(3) -5 and 5

(4) -5, only

Question 4.

Which point is *not* on the graph represented by $y = x^2 + 3x - 6$?

(1) $(-6,12)$
(2) $(-4,-2)$
(3) $(2,4)$
(4) $(3,-6)$

Question 5.

A company produces x units of a product per month, where $C(x)$ represents the total cost and $R(x)$ represents the total revenue for the month. The functions are modeled by $C(x) = 300x + 250$ and $R(x) = -0.5x^2 + 800x - 100$. The profit is the difference between revenue and cost where $P(x) = R(x) - C(x)$. What is the total profit, $P(x)$, for the month?

(1) $P(x) = -0.5x^2 + 500x - 150$
(2) $P(x) = -0.5x^2 + 500x - 350$
(3) $P(x) = -0.5x^2 - 500x + 350$
(4) $P(x) = -0.5x^2 + 500x + 350$

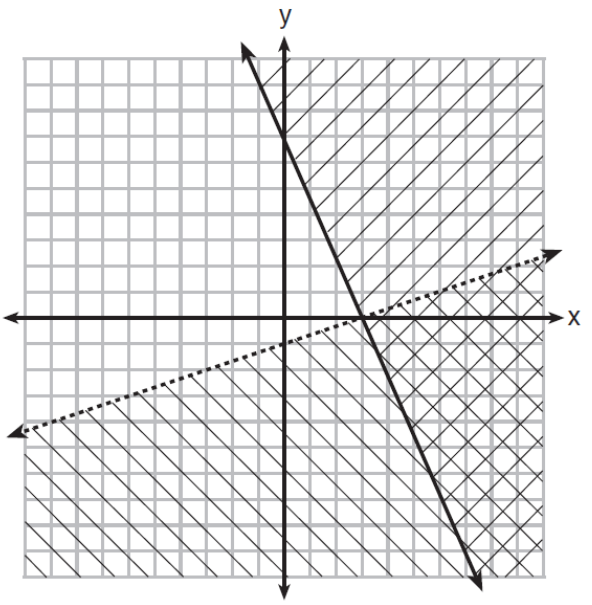
Question 6.

The value of the x-intercept for the graph of $4x - 5y = 40$ is

(1) 10
(2) $\frac{4}{5}$
(3) $-\frac{4}{5}$
(4) -8

Question 7.

What is one point that lies in the solution set of the system of inequalities graphed below?



(1) (7,0)
(2) (3,0)
(3) (0,7)
(4) (−3,5)

Question 8.

The value of the x-intercept for the graph of $4x - 5y = 40$ is

(1) 10
(2) $\frac{4}{5}$
(3) $-\frac{4}{5}$
(4) -8

Question 9.

Sam and Jeremy have ages that are consecutive odd integers. The product of their ages is 783. Which equation could be used to find Jeremy's age, j, if he is the younger man?

(1) $j^2 + 2 = 783$

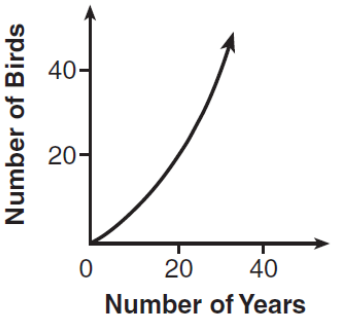
(2) $j^2 - 2 = 783$

(3) $j^2 + 2j = 783$

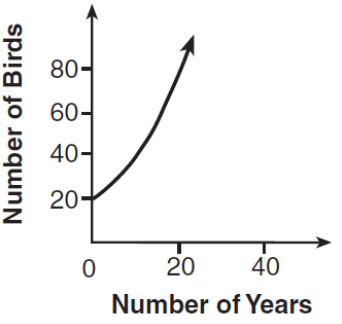
(4) $j^2 - 2j = 783$

Question 10.

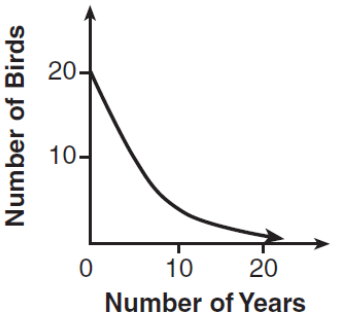
A population that initially has 20 birds approximately doubles every 10 years. Which graph represents this population growth?



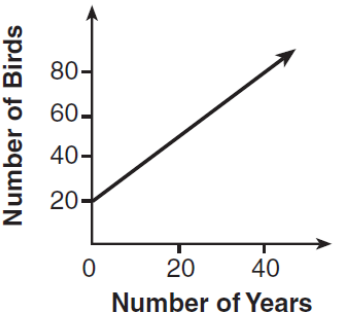
(1)



(3)



(2)



(4)

Bonus Question
Question 11 a.

Let f be a function such that $f(x) = 2x - 4$ is defined on the domain $2 \leq x \leq 6$. The range of this function is

(1) $0 \leq y \leq 8$

(2) $0 \leq y < \infty$

(3) $2 \leq y \leq 6$

(4) $-\infty < y < \infty$

Question 11 b

Given the function $f(x) = -x^2 + 8x + 9$, state whether the vertex represents a maximum or minimum point for the function. Explain your answer.