Algebra Quick Quiz
Daily Quiz 01272022

Question 1.

Eli, a mechanic, earns $20 for every oil change he performs and $120 for every tune-up. He needs to earn over $2,100 today to be able to pay the rent for his business and still have some money left over.

Select the inequality in standard form that describes this situation. Use the given numbers and the following variables.

x = the number of oil changes Eli will do today

y = the number of tune-ups Eli will do today

$120x + 20y \geq 2{,}100$

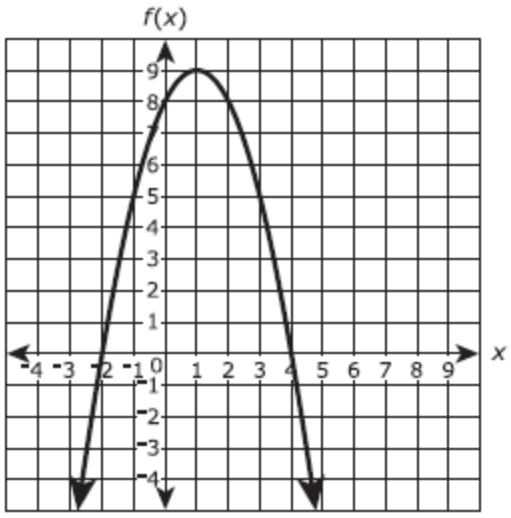
$120x + 20y > 2{,}100$

$20x + 120y \geq 2{,}100$

$20x + 120y > 2{,}100$

Question 2.

The figure shows a graph of the function of $f(x)$ in the xy-coordinate plane, with the vertex at $(1, 9)$ and the zeros at -2 and 4.



The function g is defined by $g(x) = -3x + 2$.

Which statements are true? Select **all** that apply.

A. $f(-2)$ is greater than $g(-2)$.

B. $f(-1)$ is less than $g(-1)$.

C. $f(0)$ is greater than $g(0)$.

D. $f(1)$ is less than $g(1)$.

E. $f(2)$ is greater than $g(2)$.

Question 3.

Which of the following is a solution of the equation below?

$$(k - 4)(k + 5) = 0$$

A. –9

B. –1

C. 4

D. 5

Question 4.

Solve $4x^2 - 10x + 6 = 0$

A. $x = -\frac{1}{2}$ or $x = 3$

B. $x = -1$ or $x = \frac{3}{2}$

C. $x = \frac{3}{4}$ or $x = 2$

D. $x = \frac{3}{2}$ or $x = 1$

Question 5.

This parabola shows the relationship between the amount of money a baker earns from bread sales each day and the price the baker charges for each loaf of bread.

Based on the parabola, what price should the baker charge for each loaf of bread to earn the greatest amount of money from bread sales each day?

Question 6.

The equation $V(t) = 12{,}000(0.75)^t$ represents the value of a motorcycle t years after it was purchased. Which statement is true?

(1) The motorcycle cost \$9000 when purchased.

(2) The motorcycle cost \$12,000 when purchased.

(3) The motorcycle's value is decreasing at a rate of 75% each year.

(4) The motorcycle's value is decreasing at a rate of 0.25% each year.

Question 7.

What are the solutions of the equation below?

$$5x(x + 8) = 0$$

A. $x = -5;\ x = -8$

B. $x = 0;\ x = -8$

C. $x = 0;\ x = 8$

D. $x = 5;\ x = 8$

Question 8.

What are the solutions of the equation below?

$$(x - 2)(x + 9) = 0$$

A. $x = -2;\ x = -9$

B. $x = -2;\ x = 9$

C. $x = 2;\ x = -9$

D. $x = 2;\ x = 9$

Question 9.

If $f(x) = 2(3^x) + 1$, what is the value of $f(2)$?

(1) 13
(3) 37
(2) 19
(4) 54

Question 10.

Which of the following is **not** a solution of the equation below?

$$3x(x-1)(x-2) = 0$$

A. $x = 0$
B. $x = 1$
C. $x = 2$
D. $x = 3$

Bonus

A population of paramecia, P, can be modeled using the exponential function $P(t) = 3(2)^t$, where t is the number of days since the population was first observed. Which domain is most appropriate to use to determine the population over the course of the first two weeks?

(1) $t \geq 0$
(3) $0 \leq t \leq 2$
(2) $t \leq 2$
(4) $0 \leq t \leq 14$