Algebra 1 Quick Quiz
September 16, 2024
Name.....Period.....…

1.

A ball was launched into the air, and its height above the ground was recorded each second, as shown in the table below.

Time (sec)	0	1	2	3	4
Height (ft)	11	59	75	59	11

Based on these data, which statement is a valid conclusion?

(1) The ball lands on the ground at 4 seconds.

(2) The ball reaches a maximum height of 11 feet.

(3) The ball was launched from a height of 0 feet.

(4) The ball reaches its maximum height at 2 seconds.

2.

A tour bus can seat, at most, 48 passengers. An adult ticket costs \$18 and a child ticket costs \$12. The bus company must collect at least \$650 to make a profit. If a represents the number of adult tickets sold and c represents the number of child tickets sold, which system of inequalities models this situation if they make a profit?

(1) $a + c < 48$
$18a + 12c > 650$

(3) $a + c < 48$
$18a + 12c < 650$

(2) $a + c \leq 48$
$18a + 12c \geq 650$

(4) $a + c \leq 48$
$18a + 12c \leq 650$

3.

Which equation is always true?

(1) $x^2 \cdot x^3 = x^5$

(3) $-z^2 = z^2$

(2) $3^x \cdot 3^2 = 9^{2x}$

(4) $7^a \cdot 7^b = 7^{ab}$

4.

The expression $-2(x^2 - 2x + 1) + (3x^2 + 3x - 5)$ is equivalent to

(1) $x^2 + x - 4$

(2) $x^2 - x - 7$

(3) $x^2 + 7x - 4$

(4) $x^2 + 7x - 7$

5.

Which sum is irrational?

(1) $-2\sqrt{12} + \sqrt{100}$

(2) $-\sqrt{4} + \frac{1}{3}\sqrt{900}$

(3) $\frac{1}{2}\sqrt{25} + \sqrt{64}$

(4) $\sqrt{49} + 3\sqrt{121}$

6.

The solution to $\frac{4(x-5)}{3} + 2 = 14$ is

(1) 15

(2) 14

(3) 6

(4) 4

7.

On an island, a rare breed of rabbit doubled its population each month for two years. Which type of function best models the increase in population at the end of two years?

(1) linear growth

(2) linear decay

(3) exponential growth

(4) exponential decay

8.

What is the degree of the polynomial $2x - x^2 + 4x^3$?

(1) 1
(2) 2
(3) 3
(4) 4

9.

The zeros of the function $f(x) = x(x - 5)(3x + 6)$ are

(1) 0, −5, and 2
(2) 0, 5, and −2
(3) −5 and 2, only
(4) 5 and −2, only

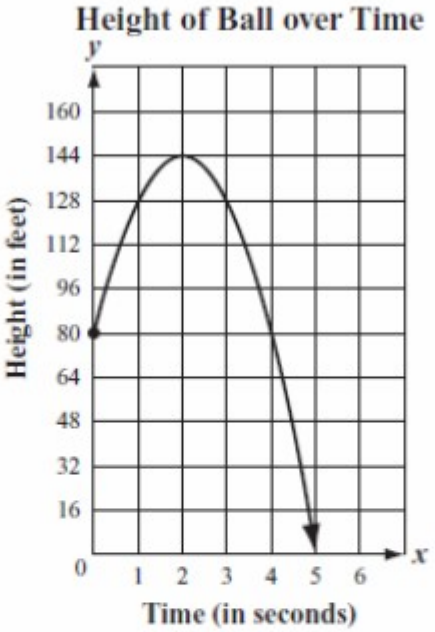
10.

What is the y-intercept of the line that passes through the points $(-1,5)$ and $(2,-1)$?

(1) −1
(2) −2
(3) 3
(4) 5

11. Bonus

The graph below represents y, the height in feet of a ball, x seconds after the ball was thrown upward from a bridge that crosses a river.



a. What is the y-intercept of the graph? Show or explain how you got your answer.

b. What does the y-intercept represent in the context of this situation?

c. After how many seconds did the ball reach its maximum height? Show or explain how you got your answer.

d. What is the maximum height, in feet, the ball reached? Show or explain how you got your answer.

e. After how many seconds did the ball reach the surface of the river? Show or explain how you got your answer.