

1.

Continuous: the domain is continuous over the interval.

2.

Discrete: The domain is a set of points. The graph will also be a set of points.

3.

Discrete: The graph represents individual points and the points are not connected.

domain: $\{-8, -6, -4, -2, 0, 2, 4, 6\}$

range: $\{1, 2, 3, 4\}$

4.

Continuous: The graph is one smooth curve and the domain can be any number in the interval.

domain: $(-\infty, \infty)$

range: $(-\infty, \infty)$

5.

domain: $\{3\}$ range: $(-\infty, \infty)$

6.

A.

standard form, (plan A, plan B)

$$35x + 45y = 630$$

$$\text{Or } 35A + 45B = 630$$

B.

This represents a discrete function because the plans sold would be fixed points on the graph, not an interval.

7.

A.

point-slope form (minute, bales), $(5, 75)$, $m = 10$

$$y - 75 = 10(x - 5)$$

B.

This is a discrete function because the hay bales would increase in whole number increments.

8.

A.

(minute, gallon)

$m = 2$, $b = 0$ (Note that the tub is being filled; it will be empty to start.)

$$y = 2x$$

B.

The function is continuous because as the tub is filled, the number of gallons can be measured, at any time period.

9.

arithmetic; $d = 4$, $a_5 = 11$, $a_6 = 15$, $a_7 = 19$

10.

not arithmetic

11.

$$a_1 = 9, d = -1.5$$

$$a_n = 9 - 1.5(n - 1)$$

12.

$$a_5 = 9 - 1.5(5 - 1) = 9 - 1.5(4) = 3$$

$$a_{10} = 9 - 1.5(10 - 1) = 9 - 1.5(9) = -4.5$$

$$a_{12} = 9 - 1.5(12 - 1) = 9 - 1.5(11) = -7.5$$

13.

$$d = -2, a_1 = 6$$

$$a_n = 6 + -2(n - 1)$$

14.

$$a_{10} = 6 + -2(10 - 1) = 6 + -2(9) = 6 - 18 = -12$$

$$a_{12} = 6 + -2(12 - 1) = 6 + -2(11) = 6 - 22 = -16$$

$$a_{101} = 6 + -2(101 - 1) = 6 + -2(100) = 6 - 200 = -194$$