F.IF.B.5: Domain and Range 2

1 Skyler mows lawns in the summer. The function $f(x)$ is used to model the amount of money earned, where x is the number of lawns completely mowed. A reasonable domain for this function would be
1) real numbers
2) rational numbers
3) irrational numbers
4) natural numbers

2 Which domain is most appropriate for a function that represents the number of items, $f(x)$, placed into a laundry basket each day, x, for the month of January?
1) integers
2) whole numbers
3) rational numbers
4) irrational numbers

3 Which domain would be the most appropriate set to use for a function that predicts the number of household online-devices in terms of the number of people in the household?
1) integers
2) whole numbers
3) irrational numbers
4) rational numbers

4 Which domain would be the most appropriate to use for a function that compares the number of emails sent (x) to the amount of data used for a cell phone plan (y)?
1) integers
2) whole numbers
3) rational numbers
4) irrational numbers

5 A dolphin jumps out of the water and then back into the water. His jump could be graphed on a set of axes where x represents time and y represents distance above or below sea level. The domain for this graph is best represented using a set of
1) integers
2) positive integers
3) real numbers
4) positive real numbers

6 A construction company uses the function $f(p)$, where p is the number of people working on a project, to model the amount of money it spends to complete a project. A reasonable domain for this function would be
1) positive integers
2) positive real numbers
3) both positive and negative integers
4) both positive and negative real numbers

7 A store sells self-serve frozen yogurt sundaes. The function $C(w)$ represents the cost, in dollars, of a sundae weighing w ounces. An appropriate domain for the function would be
1) integers
2) rational numbers
3) nonnegative integers
4) nonnegative rational numbers

8 The function $G(m)$ represents the amount of gasoline consumed by a car traveling m miles. An appropriate domain for this function would be
1) integers
2) rational numbers
3) nonnegative integers
4) nonnegative rational numbers

9 A grocery store sells packages of beef. The function $C(w)$ represents the cost, in dollars, of a package of beef weighing w pounds. The most appropriate domain for this function would be
1) integers
2) rational numbers
3) positive integers
4) positive rational numbers

10 The daily cost of production in a factory is calculated using $c(x) = 200 + 16x$, where x is the number of complete products manufactured. Which set of numbers best defines the domain of $c(x)$?
1) integers
2) positive real numbers
3) positive rational numbers
4) whole numbers

11 A store manager is trying to determine if they should continue to sell a particular brand of nails. To model their profit, they use the function $p(n)$, where n is the number of boxes of these nails sold in a day. A reasonable domain for this function would be
1) nonnegative integers
2) rational numbers
3) real numbers
4) integers

12 An online company lets you download songs for \$0.99 each after you have paid a \$5 membership fee. Which domain would be most appropriate to calculate the cost to download songs?
1) rational numbers greater than zero
2) whole numbers greater than or equal to one
3) integers less than or equal to zero
4) whole numbers less than or equal to one

13 At an ice cream shop, the profit, $P(c)$, is modeled by the function $P(c) = 0.87c$, where c represents the number of ice cream cones sold. An appropriate domain for this function is
1) an integer ≤ 0
2) an integer ≥ 0
3) a rational number ≤ 0
4) a rational number ≥ 0

14 Officials in a town use a function, C, to analyze traffic patterns. $C(n)$ represents the rate of traffic through an intersection where n is the number of observed vehicles in a specified time interval. What would be the most appropriate domain for the function?
1) $\{\ldots -2, -1, 0, 1, 2, 3, \ldots\}$
2) $\{-2, -1, 0, 1, 2, 3\}$
3) $\{0, \frac{1}{2}, 1, 1\frac{1}{2}, 2, 2\frac{1}{2}\}$
4) $\{0, 1, 2, 3, \ldots\}$

15 The function $h(t) = -16t^2 + 144$ represents the height, $h(t)$, in feet, of an object from the ground at t seconds after it is dropped. A realistic domain for this function is
1) $-3 \leq t \leq 3$
2) $0 \leq t \leq 3$
3) $0 \leq h(t) \leq 144$
4) all real numbers

16 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) $t \geq 0$
2) $t \leq 2$
3) $0 \leq t \leq 2$
4) $0 \leq t \leq 14$

F.IF.B.5: Domain and Range 2
Answer Section

1 ANS: 4 REF: 012313ai
2 ANS: 2 REF: 062206ai
3 ANS: 2 REF: 011506ai
4 ANS: 2 REF: 062116ai
5 ANS: 4
Time is continuous and positive.

REF: 081921ai
6 ANS: 1 REF: 011615ai
7 ANS: 4 REF: 061623ai
8 ANS: 4 REF: 082322ai
9 ANS: 4 REF: 061920ai
10 ANS: 4 REF: 011719ai
11 ANS: 1 REF: 062324ai
12 ANS: 2 REF: 081620ai
13 ANS: 2 REF: 061821ai
14 ANS: 4
There are no negative or fractional cars.

REF: 061402ai
15 ANS: 2

$$0 = -16t^2 + 144$$

$$16t^2 = 144$$

$$t^2 = 9$$

$$t = 3$$

REF: 081423ai
16 ANS: 4 REF: 012021ai