Unit 2-10: Domain & Range of Functions

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. Given $\{(-2,1), (-1,2), (0,2), (1,3), (2,3)\}$, what is the RANGE of $f(x)$?
   
   a. $\{1,2,3\}$  
   b. $\{-2,-1,0,1,2\}$  
   c. $\{-2,-1,0,1,2,3\}$  
   d. $\{0,1,2,3\}$

2. Given $f(x) = 2^x - 1$ and the domain can be described by the set $\{1,2,3\}$, what is the RANGE of $f(x)$?
   
   a. $\{1,2,3\}$  
   b. $\{1,3,7\}$  
   c. $\{1,3,5\}$  
   d. $\{2,3,4\}$

3. Given $f(x)$ is graphed below. What is the RANGE of $f(x)$?
   
   a. $-3 < x < 3$  
   b. $-3 < f(x) < 3$  
   c. $-2 \leq x < 1$  
   d. $-2 \leq f(x) < 1$
4. A farmer owns a horse that can continuously run an average of 8 miles an hour for up to 6 hours. Let $y$ be the distance the horse can travel for a given $x$ amount of time in hours. The horse’s progress can be modeled by a function. Which of the following describes the **DOMAIN** of the function?

- a. $0 \leq x \leq 6$
- b. $0 \leq y \leq 6$
- c. $0 \leq x \leq 48$
- d. $0 \leq y \leq 48$

5. Which function graphed below has a **Domain** that could be described as a **CONTINUOUS** variable but the **Range** is a **DISCRETE** variable?

- a. [Graph A]
- b. [Graph B]
- c. [Graph C]
- d. [Graph D]
6. A wedding planner is preparing a wedding reception dinner and has determined that the overall cost will require $25 for each guest that attends and a maximum of 200 guests. This situation can be represented by \( c(x) = 25x \), where \( x \) is the independent variable and represents the number of guests and \( c(x) \) is the dependent variable and represents the cost of the reception.

Which correctly describes the DOMAIN of this situational function?

a. The domain is a DISCRETE variable.
b. The domain is a CONTINUOUS variable.
c. The domain is a DEPENDENT variable.
d. The domain is an INFINITE variable.

7. What would be the \( y \)-intercept for the function \( f(x) = 3x - 6 \)?

a. \((0, -6)\) 
   c. \((-6, 0)\)

b. \((0, 2)\) 
   d. \((2, 0)\)

8. What would be the \( x \)-intercept for the function \( g(x) = 2^x - 4 \)?

a. \((0, -4)\) 
   c. \((0, 2)\)

b. \((0, -3)\) 
   d. \((2, 0)\)

9. The graph of the linear function \( g(x) \) is shown below.

What is the \( x \)-intercept of \( g(x) \)?

a. \((-8, 0)\) 
   c. \((0, -6)\)

b. \((-6, 0)\) 
   d. \((2, 0)\)