Section 02-05 Sample Quiz - Function Inverses

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

____ 1. Find the Inverse of \( g(x) = 2x - 3 \).
   a. \( g^{-1}(x) = \frac{x}{2} + 3 \)
   b. \( g^{-1}(x) = \frac{x + 3}{2} \)
   c. \( g^{-1}(x) = \frac{x + 2}{3} \)
   d. \( g^{-1}(x) = \frac{x}{3} + 2 \)

____ 2. Find the Inverse of \( f(x) = \frac{x^3 - 2}{4} \).
   a. \( f^{-1}(x) = 4 \left( \frac{x}{2} \right)^3 \)
   b. \( f^{-1}(x) = \sqrt[3]{4x + 2} \)
   c. \( f^{-1}(x) = 4 \sqrt[3]{x + 2} \)
   d. \( f^{-1}(x) = 4x^3 + 2 \)

____ 3. Find the Inverse of \( f(x) = \frac{(x + 3)}{(x - 4)} \), where \( x \neq 4 \).
   a. \( f^{-1}(x) = \frac{x + 4}{x - 3} \)
   b. \( f^{-1}(x) = \frac{2x - 1}{4x - 3} \)
   c. \( f^{-1}(x) = \frac{4x + 3}{x - 1} \)
   d. \( f^{-1}(x) = \frac{x - 1}{2x - 1} \)

____ 4. Find the Inverse of \( f(x) = x^2 + 3 \), \( x \geq 0 \).
   a. \( f^{-1}(x) = \pm \sqrt{x - 3} \)
   b. \( f^{-1}(x) = 3 - \sqrt{x} \)
   c. \( f^{-1}(x) = \sqrt{x - 3} \)
   d. Inverse is not a function
5. If \( f(x) \) and \( g(x) \) are inverses, why is \( f(g(x)) = x \)?

a. Because any value of \( x \) will make both equations true.
b. Because \( f(x) \) and \( g(x) \) have corresponding operations that are inverses of each other, which cancels each operation out.
c. Because any value of \( x \) will result in reciprocals.
d. Because they are both symmetric about the line \( x\text{-axis} \).

6. The functions \( f(x) \) and \( g(x) \) are inverses.

\( f(x) \) involves the following operations in the following order:
- Divide by 2
- Add 5

Which operations must be part of \( g(x) \)?

a. • Subtract 5
   • Multiply by 2

b. • Multiply by \(-2\)
   • Add \(-5\)

c. • Subtract \(-5\)
   • Multiply by 2

d. • Add \(-5\)
   • Multiply by \(-2\)
7. Which of the following Graphs could represent both a function and its inverse graphed on the same coordinate grid?
8. Which graph below is the inverse of $f(x) = 3x + 1$?

a. 

b. 

c. 

d.