

# Inverse Relations and Functions

 Bell work

## 1. Complete the following statement.

- The range of the \_\_\_\_\_ relation is the domain of the \_\_\_\_\_ relation, and the range of the \_\_\_\_\_ relation is the domain of the \_\_\_\_\_ relation.
- The graphs of the function and the inverse function are reflections across the line \_\_\_\_\_.
- If a function  $f$  is \_\_\_\_\_, it has an inverse function  $f^{-1}$

## 2. Write T for true or F for false

- $f^{-1}(x) = \frac{1}{f(x)}$
- $f(f^{-1}(x)) = x$  and  $f^{-1}(f(x)) = x$

## Multiple Choices

3. If  $f(x) = 4x$  and  $g(x) = \frac{x}{4}$ , then  $(f \circ g)(x)$  is:

- $2x$
- $x^2$
- $x$

4. If  $f(x) = x + 3$ , the value of  $f^{-1}(-2)$  is:

- 1
- 5
- 1

5. If  $f(x) = \frac{x-2}{5}$  and  $g(x) = 5x + 2$ , then  $(f \circ g)(6)$  is:

- 1
- 6
- 2

# Inverse Relations and Functions

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## ANSWERS

1. Complete the following statement.

- The range of the **original** relation is the domain of the **inverse** relation, and the range of the **inverse** relation is the domain of the **original** relation.
- The graphs of the function and the inverse function are reflections across the line  **$y=x$** .
- If a function  $f$  is **one-to-one**, it has an inverse function  $f^{-1}$ .

2. Write T for true or F for false

- $f^{-1}(x) = \frac{1}{f(x)}$  **F**
- $f(f^{-1}(x)) = x$  and  $f^{-1}(f(x)) = x$  **T**

Multiple Choices

3. If  $f(x) = 4x$  and  $g(x) = \frac{x}{4}$ , then  $(f \circ g)(x)$  is:

- $2x$
- $x^2$
- $x$**

4. If  $f(x) = x + 3$ , the value of  $f^{-1}(-2)$  is:

- $1$
- $-5$**
- $-1$

5. If  $f(x) = \frac{x-2}{5}$  and  $g(x) = 5x + 2$ , then  $(f \circ g)(6)$  is:

- $1$
- $6$**
- $-2$