

# Algebra: Function Operations & Composite Functions

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## DIRECTIONS

Given  $f(x)$  and  $g(x)$ , perform the operation or evaluate the composite function.

1 Given  $f(x)=2x+3$ ,  $g(x)=x-1$ . Find:

$$(f + g)(3)$$

Answer: \_\_\_\_\_

2 Given  $f(x)=x^2+1$ ,  $g(x)=3x$ . Find:

$$(f \circ g)(2)$$

Answer: \_\_\_\_\_

3 Given  $f(x)=x+4$ ,  $g(x)=x^2-2$ . Find:

$$(g \circ f)(1)$$

Answer: \_\_\_\_\_

4 Given  $f(x)=2x$ ,  $g(x)=x+5$ . Find:

$$(f + g)(4)$$

Answer: \_\_\_\_\_

5 Given  $f(x)=x-3$ ,  $g(x)=x^2$ . Find:

$$(f - g)(2)$$

Answer: \_\_\_\_\_

6 Given  $f(x)=x-3$ ,  $g(x)=x^2$ . Find:

$$(f - g)(2)$$

Answer: \_\_\_\_\_

7 Given  $f(x)=x+4$ ,  $g(x)=x^2-2$ . Find:

$$(f \circ g)(4)$$

Answer: \_\_\_\_\_

8 Given  $f(x)=x^2+1$ ,  $g(x)=3x$ . Find:

$$(f \circ g)(1)$$

Answer: \_\_\_\_\_

9 Given  $f(x)=x-3$ ,  $g(x)=x^2$ . Find:

$$(f - g)(1)$$

Answer: \_\_\_\_\_

10 Given  $f(x)=x+4$ ,  $g(x)=x^2-2$ . Find:

$$(f \circ g)(2)$$

Answer: \_\_\_\_\_

# Answer Key & Solutions

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**TEACHER NOTES** ( $f \circ g(x)$  means  $f(g(x))$  — substitute  $g$  first. Order matters:  $g \neq g \circ f$  in general.)

1 Given  $f(x)=2x+3$ ,  $g(x)=x-1$ . Find:

$$= \quad \quad \quad 11$$
$$(f + g)(3)$$

2 Given  $f(x)=x^2+1$ ,  $g(x)=3x$ . Find:

$$= \quad \quad \quad 37$$
$$(f \circ g)(2)$$

3 Given  $f(x)=x+4$ ,  $g(x)=x^2-2$ . Find:

$$= \quad \quad \quad 23$$
$$(g \circ f)(1)$$

4 Given  $f(x)=2x$ ,  $g(x)=x+5$ . Find:

$$= \quad \quad \quad 17$$
$$(f + g)(4)$$

5 Given  $f(x)=x-3$ ,  $g(x)=x^2$ . Find:

$$= \quad \quad \quad -5$$
$$(f - g)(2)$$

6 Given  $f(x)=x-3$ ,  $g(x)=x^2$ . Find:

$$= \quad \quad \quad -5$$
$$(f - g)(2)$$

7 Given  $f(x)=x+4$ ,  $g(x)=x^2-2$ . Find:

$$= \quad \quad \quad 18$$
$$(f \circ g)(4)$$

8 Given  $f(x)=x^2+1$ ,  $g(x)=3x$ . Find:

$$= \quad \quad \quad 10$$
$$(f \circ g)(1)$$

9 Given  $f(x)=x-3$ ,  $g(x)=x^2$ . Find:

$$= \quad \quad \quad -3$$
$$(f - g)(1)$$

10 Given  $f(x)=x+4$ ,  $g(x)=x^2-2$ . Find:

$$= \quad \quad \quad 6$$
$$(f \circ g)(2)$$