Section 1.6 Independent Practice   Name: Period:

Evaluate each composite value.

1.   If $f(x) = 3x - 5$ and $g(x) = x^2$, find $(f \circ g)(3)$
A.) 9   B.) 27   C.) 5   D.) 22

2.   If $f(x) = -9x - 9$ and $g(x) = \sqrt{x-9}$, find $(f \circ g)(10)$
A.) 1   B.) -9   C.) -18   D.) 8

3.   If $f(x) = -4x + 2$ and $g(x) = \sqrt{x-8}$, find $(f \circ g)(12)$
A.) 2   B.) -6   C.) -18   D.) undefined

4.   If $f(x) = -3x + 4$ and $g(x) = x^2$, find $(g \circ f)(-2)$
A.) 10   B.) 100   C.) -8   D.) 4

5.   If $f(x) = -2x + 1$ and $g(x) = \sqrt{x^2 - 5}$, find $(g \circ f)(2)$
A.) 2   B.) -1   C.) 1   D.) -3

Find each composite.

6.   Given $f(x) = -9x + 3$ and $g(x) = x^4$, find $(f \circ g)(x)$
A.) $-9x^4 + 3$ B.) $-9x^2 + 3$ C.) $9x^4 + 3$ D.) $9x^4 - 3$

7.   Given $f(x) = 2x - 5$ and $g(x) = x + 2$, find $(f \circ g)(x)$
A.) $2x^2 - x$ B.) $2x - 3$ C.) $2x - 1$ D.) $2x + 1$

8.   Given $f(x) = x^2 + 7$ and $g(x) = x - 3$, find $(f \circ g)(x)$
A.) $x^2 - 6x + 10$ B.) $x^2 + 4$ C.) $x^2 - 6x + 16$ D.) $x^2 - 4$

9.   Given $f(x) = 4x + 3$ and $g(x) = x^2$, find $(g \circ f)(x)$
A.) $x^2 + 24x + 9$ B.) $16x^2 + 9$ C.) $4x^2 + 3$ D.) $16x^2 + 24x + 9$

10.   Given $f(x) = x - 1$ and $g(x) = x^2 + 2x - 8$, find $(g \circ f)(x)$
A.) $x^2 - 9$ B.) $x^2 + 2x - 9$ C.) $x^2 + 2x - 7$ D.) $x^2 + 2x - 7$

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COMPOSITE FUNCTION Worksheet Answers

Evaluate each composite value

1.
$$(f \circ g)(3) = f(g(3))$$
$$g(3) = (3)^2 = 9$$
$$f(9) = 3(9) - 5 = 27 - 5 = 22$$

2.
$$(f \circ g)(10) = f(g(10))$$
$$g(10) = \sqrt{(10) - 9} = \sqrt{1} = 1$$
$$f(1) = -9(1) - 9 = -9 - 9 = -18$$

3.
$$(f \circ g)(12) = f(g(12))$$
$$g(12) = \sqrt{(12) - 8} = \sqrt{4} = 2$$
$$f(2) = -4(2) + 2 = -8 + 2 = -6$$

4.
$$(g \circ f)(-2) = g(f(-2))$$
$$f(-2) = -3(-2) + 4 = 6 + 4 = 10$$
$$g(10) = (10)^2 = 100$$

5.
$$(g \circ f)(2) = g(f(2))$$
$$f(2) = -2(2) + 1 = -4 + 1 = -3$$
$$g(-3) = \sqrt{(-3)^2 - 5} = \sqrt{9 - 5} = \sqrt{4} = 2$$

6.
$$(f \circ g)(x) = f[g(x)] = f(x^4) = -9(x^4) + 3 = -9x^4 + 3$$

7.
$$(f \circ g)(x) = f[g(x)] = f(x+2) = 2(x+2) - 5 = 2x + 4 - 5 = 2x - 1$$

8.
$$(f \circ g)(x) = f[g(x)] = f(x-3) = (x-3)^2 + 7 = x^2 - 6x + 9 + 7 = x^2 - 6x + 16$$

9.
$$(g \circ f)(x) = g[f(x)] = g(4x+3) = (4x+3)^2 = 16x^2 + 24x + 9$$

10.
$$(g \circ f)(x) = g[f(x)] = g(x-1) = (x-1)^2 + 2(x-1) - 8$$

$$= x^2 - 2x + 1 + 2x - 2 - 8 = x^2 - 9$$