Composition and Inverse Functions

Date_____ Period____

Perform the indicated operation.

1) $h(n) = n^2 - 1$
$g(n) = 2n - 5$
Find $h(g(7))$

2) $f(a) = 4a + 5$
$g(a) = 3a - 1$
Find $(f \circ g)(-2)$

3) $g(x) = 4x - 3$
$h(x) = 3x + 4$
Find $g(h(-2))$

4) $h(n) = 2n + 2$
$g(n) = 4n + 2$
Find $(h \circ g)(5)$

5) $g(a) = 4a - 1$
$f(a) = 2a^2 + 4a$
Find $(g \circ f)(a)$

6) $f(n) = n^2 - 4n$
$g(n) = 2n$
Find $f(g(n))$

7) $g(a) = -4a + 1$
$h(a) = a^2 + 2$
Find $g(h(a))$

8) $f(x) = 3x + 4$
$g(x) = 2x^2 - 3$
Find $(f \circ g)(x)$

9) $f(x) = x^2 + 4$
$g(x) = 2x + 2$
Find $(f \circ g)(4x)$

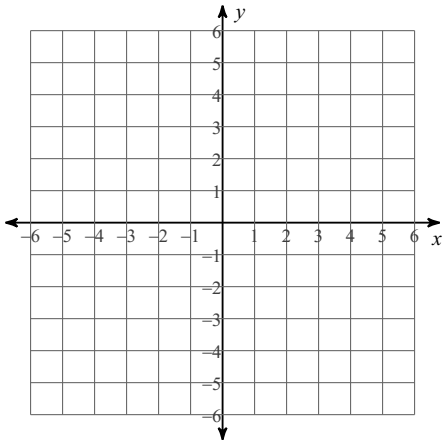
10) $g(a) = 2a + 5$
$f(a) = a^2 - 2$
Find $(g \circ f)(2a)$

11) $g(x) = 2x - 5$
$h(x) = x^2 - 1$
Find $g(h(x^2))$

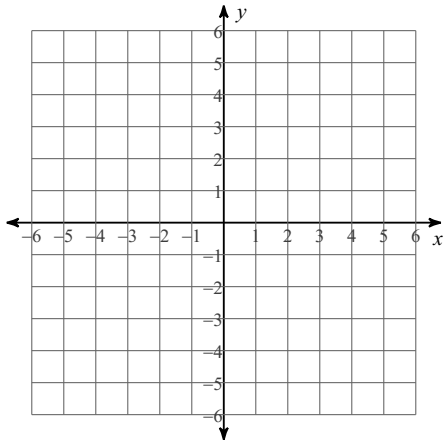
12) $f(x) = x - 1$
$g(x) = -2x^3 - 3$
Find $(f \circ g)(-2x)$

Find the inverse of each function. Then graph the function and its inverse.

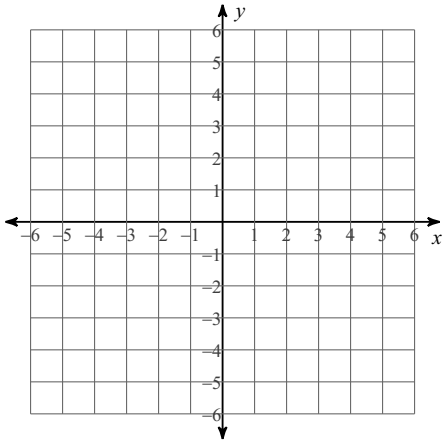
13) $g(x) = 5x + 3$



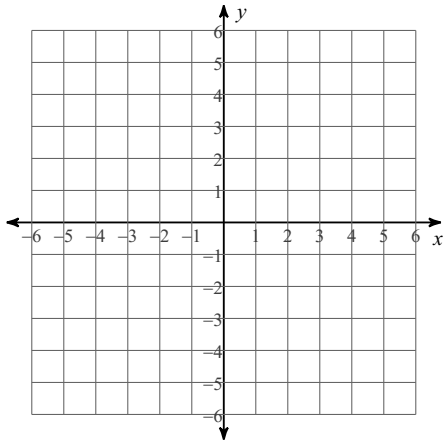
14) $g(x) = -4x + 5$



15) $f(x) = -x + 2$



16) $f(x) = \dfrac{-2 + x}{2}$



Find the inverse of each function.

17) $f(x) = -2x + 4$

18) $f(x) = (x - 1)^3$

19) $f(x) = \sqrt[3]{-x + 3}$

20) $g(x) = 5x + 5$

21) $f(x) = (x + 1)^5 - 1$

22) $f(x) = \sqrt[5]{x + 3}$

23) $f(x) = -\dfrac{3x}{4}$

24) $f(x) = x - 1$

Answers to Composition and Inverse Functions (ID: 1)

1) 80

3) -11

5) $8a^2 + 16a - 1$

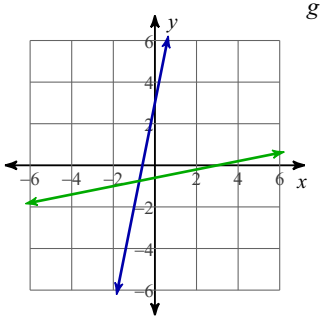
7) $-4a^2 - 7$

9) $64x^2 + 32x + 8$

11) $2x^4 - 7$

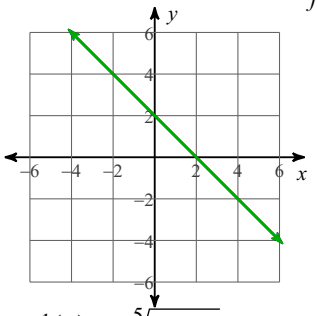
13)

$g^{-1}(x) = \frac{x-3}{5}$



15)

$f^{-1}(x) = -x + 2$



17) $f^{-1}(x) = 2 - \frac{1}{2}x$

19) $f^{-1}(x) = -x^3 + 3$

21) $f^{-1}(x) = \sqrt[5]{x+1} - 1$

23) $f^{-1}(x) = -\frac{4x}{3}$