Name_____

# Function Inverses

Date_____ Period____

**State if the given functions are inverses.**

1) $g(x) = 4 - \dfrac{3}{2}x$

$f(x) = \dfrac{1}{2}x + \dfrac{3}{2}$

2) $g(n) = \dfrac{-12 - 2n}{3}$

$f(n) = \dfrac{-5 + 6n}{5}$

3) $f(n) = \dfrac{-16 + n}{4}$

$g(n) = 4n + 16$

4) $f(x) = -\dfrac{4}{7}x - \dfrac{16}{7}$

$g(x) = \dfrac{3}{2}x - \dfrac{3}{2}$

5) $f(n) = -(n + 1)^3$

$g(n) = 3 + n^3$

6) $f(n) = 2(n - 2)^3$

$g(n) = \dfrac{4 + \sqrt[3]{4n}}{2}$

7) $f(x) = \dfrac{4}{-x - 2} + 2$

$h(x) = -\dfrac{1}{x + 3}$

8) $g(x) = -\dfrac{2}{x} - 1$

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

**Find the inverse of each function.**

9) $h(x) = \sqrt[3]{x} - 3$

10) $g(x) = \dfrac{1}{x} - 2$

11) $h(x) = 2x^3 + 3$

12) $g(x) = -4x + 1$

-1-

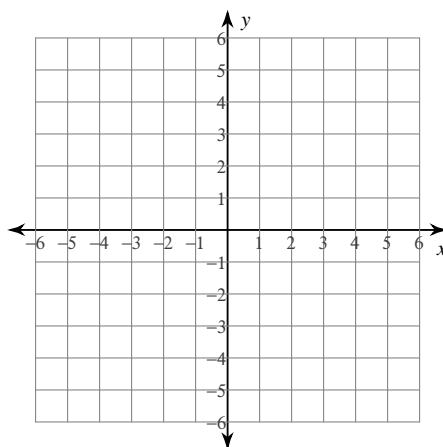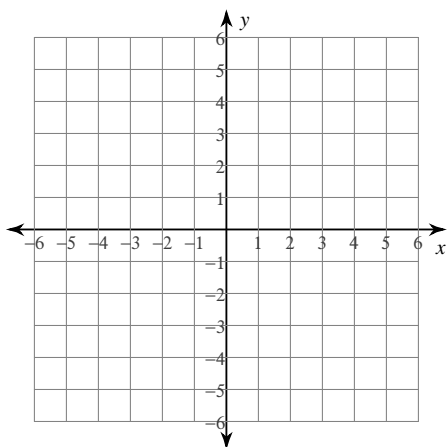13) $g(x) = \dfrac{7x + 18}{2}$

14) $f(x) = x + 3$

15) $f(x) = -x + 3$

16) $f(x) = 4x$

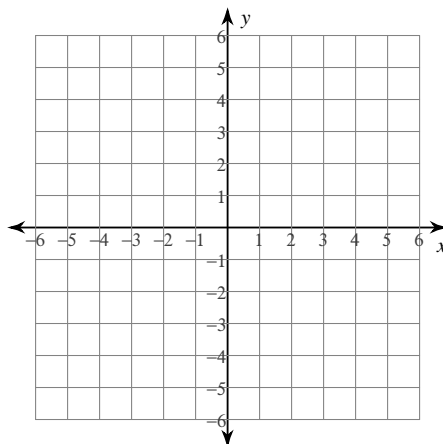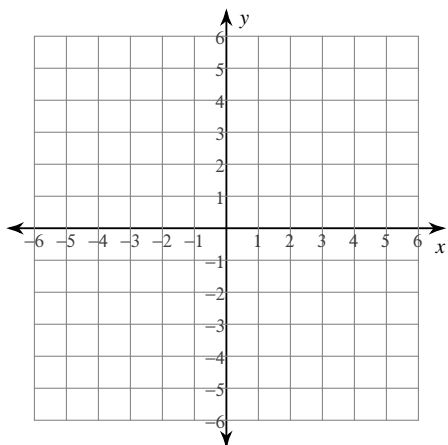**Find the inverse of each function.  Then graph the function and its inverse.**

17) $f(x) = -1 - \dfrac{1}{5}x$

18) $g(x) = \dfrac{1}{x - 1}$

19) $f(x) = -2x^3 + 1$

20) $g(x) = \dfrac{-x - 5}{3}$

# Function Inverses

**State if the given functions are inverses.**

1) $g(x) = 4 - \dfrac{3}{2}x$

$f(x) = \dfrac{1}{2}x + \dfrac{3}{2}$

No

2) $g(n) = \dfrac{-12 - 2n}{3}$

$f(n) = \dfrac{-5 + 6n}{5}$

No

3) $f(n) = \dfrac{-16 + n}{4}$

$g(n) = 4n + 16$

Yes

4) $f(x) = -\dfrac{4}{7}x - \dfrac{16}{7}$

$g(x) = \dfrac{3}{2}x - \dfrac{3}{2}$

No

5) $f(n) = -(n + 1)^3$

$g(n) = 3 + n^3$

No

6) $f(n) = 2(n - 2)^3$

$g(n) = \dfrac{4 + \sqrt[3]{4n}}{2}$

Yes

7) $f(x) = \dfrac{4}{-x - 2} + 2$

$h(x) = -\dfrac{1}{x + 3}$

No

8) $g(x) = -\dfrac{2}{x} - 1$

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

Yes

**Find the inverse of each function.**

9) $h(x) = \sqrt[3]{x} - 3$

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

10) $g(x) = \dfrac{1}{x} - 2$

$g^{-1}(x) = \dfrac{1}{x + 2}$

11) $h(x) = 2x^3 + 3$

$h^{-1}(x) = \sqrt[3]{\dfrac{x - 3}{2}}$

12) $g(x) = -4x + 1$

$g^{-1}(x) = -\dfrac{1}{4}x + \dfrac{1}{4}$

13) $g(x) = \dfrac{7x + 18}{2}$

$g^{-1}(x) = \dfrac{2x - 18}{7}$

14) $f(x) = x + 3$

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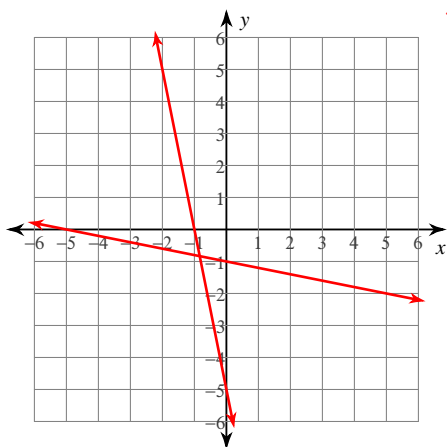
15) $f(x) = -x + 3$

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

16) $f(x) = 4x$

$f^{-1}(x) = \dfrac{x}{4}$

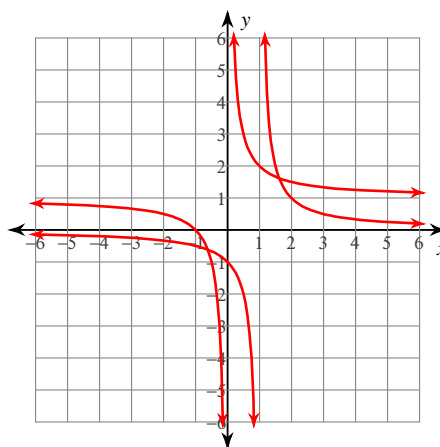**Find the inverse of each function.  Then graph the function and its inverse.**

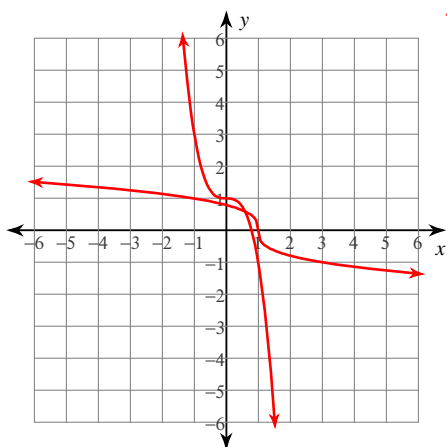17) $f(x) = -1 - \dfrac{1}{5}x$

$f^{-1}(x) = -5x - 5$



18) $g(x) = \dfrac{1}{x - 1}$

$g^{-1}(x) = \dfrac{1}{x} + 1$



19) $f(x) = -2x^3 + 1$

$f^{-1}(x) = \sqrt[3]{\dfrac{-x + 1}{2}}$



20) $g(x) = \dfrac{-x - 5}{3}$

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