Kuta Software - Infinite Precalculus

Name_____

Function Inverses

Date_____ Period_____

State if the given functions are inverses.

1) $g(x) = -4x$
   $f(x) = -6x - 1$

2) $h(n) = \frac{2}{9}n + \frac{10}{9}$
   $f(n) = -5 + \frac{9}{2}n$

3) $g(n) = \frac{4}{-n + 2}$
   $f(n) = -\frac{4}{n} + 2$

4) $g(x) = \frac{10}{7}x - \frac{15}{7}$
   $f(x) = -4 - \frac{4}{5}x$

Find the inverse of each function.

5) $h(x) = \frac{3}{-x - 2}$

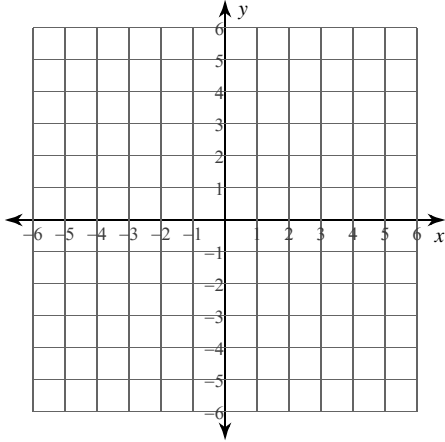6) $f(x) = \frac{2}{7}x - \frac{10}{7}$

7) $f(x) = -\frac{3}{-x - 3} - 2$

8) $h(x) = -2x + 5$
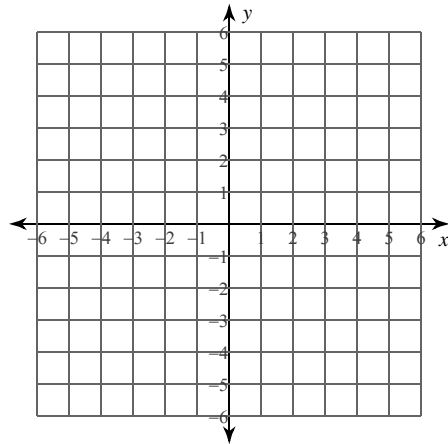
9) $f(x) = \frac{5}{3}x - \frac{5}{3}$

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

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

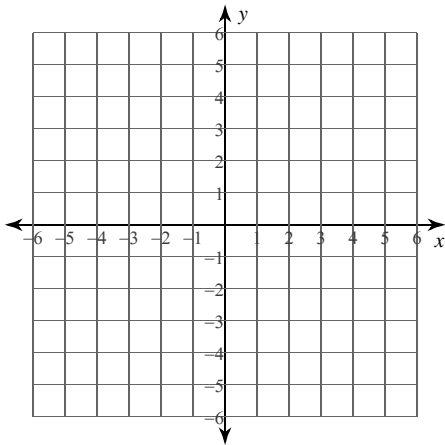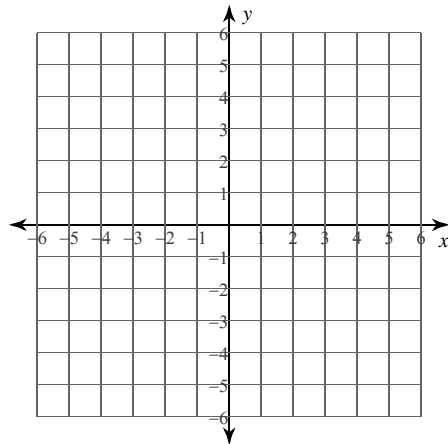11) $f(x) = \sqrt[5]{x+1} + 2$

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

13) $g(x) = \dfrac{-3x - 10}{5}$

14) $g(n) = 2n^3 - 3$

Critical thinking questions:

15) Give an example of a function that doesn't have an inverse.

16) Find the inverse of $f(x) = \sqrt[4]{x}$

Name_____

Function Inverses

Date_____ Period____

State if the given functions are inverses.

1) $g(x) = -4x$
   $f(x) = -6x - 1$

   No

2) $h(n) = \dfrac{2}{9}n + \dfrac{10}{9}$

   $f(n) = -5 + \dfrac{9}{2}n$

   Yes

3) $g(n) = \dfrac{4}{-n + 2}$

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

   Yes

4) $g(x) = \dfrac{10}{7}x - \dfrac{15}{7}$

   $f(x) = -4 - \dfrac{4}{5}x$

   No

Find the inverse of each function.

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

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

6) $f(x) = \dfrac{2}{7}x - \dfrac{10}{7}$

   $f^{-1}(x) = 5 + \dfrac{7}{2}x$

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

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

8) $h(x) = -2x + 5$

   $h^{-1}(x) = -\dfrac{1}{2}x + \dfrac{5}{2}$

9) $f(x) = \dfrac{5}{3}x - \dfrac{5}{3}$
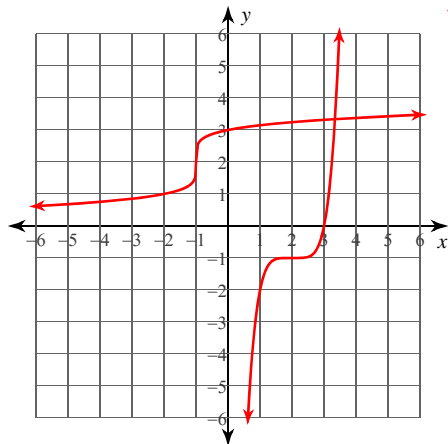
   $f^{-1}(x) = 1 + \dfrac{3}{5}x$

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

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

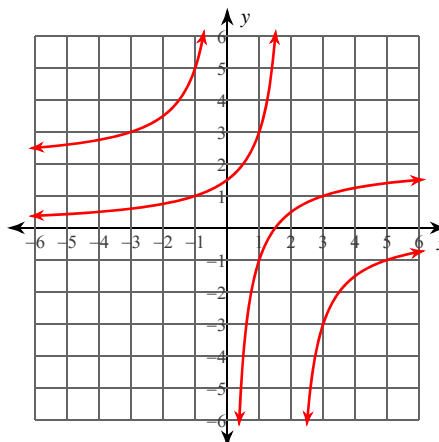**Find the inverse of each function. Then graph the function and its inverse.**

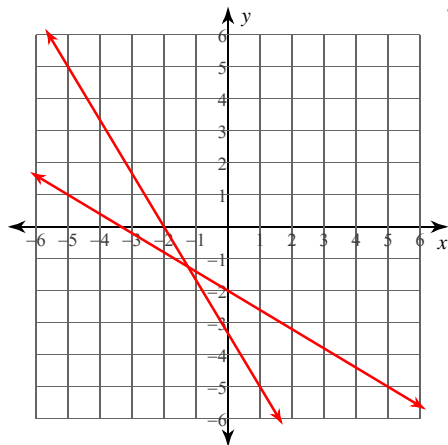11) $f(x) = \sqrt[5]{x+1} + 2$

$f^{-1}(x) = (x-2)^5 - 1$

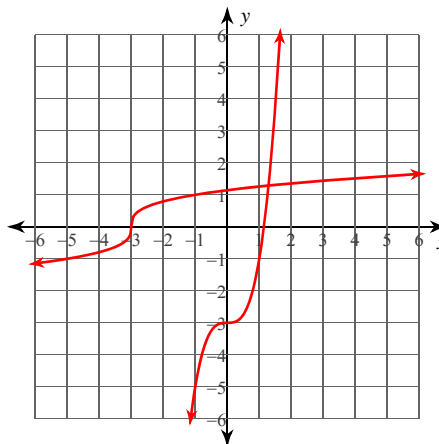12) $f(x) = -\dfrac{3}{x} + 2$

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

13) $g(x) = \dfrac{-3x - 10}{5}$

$g^{-1}(x) = \dfrac{-5x - 10}{3}$

14) $g(n) = 2n^3 - 3$

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

Critical thinking questions:

15) Give an example of a function that doesn't have an inverse.

$f(x) = x^2$

16) Find the inverse of $f(x) = \sqrt[4]{x}$

$f^{-1}(x) = x^4$ for $x \geq 0$