

Inverse Review

switch & solve

Pe

Linear Inverses

1) $f(x) = 3x + 2$
 $x - 2 = 3y$
 $\frac{x-2}{3} = y$

2) $g(x) = 2x - 5$

Cubic Inverses

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

4) $f(y) = 4\sqrt[3]{y}$
 $\left(\frac{x}{4}\right)^3 = y$

Rational Inverses

5) $g(y) = \frac{x-3}{x-2}$
 $\frac{y-3}{y-2} = \frac{x-2}{xy-2x}$
 $y-3 = x(y-2)$
 $y - xy = xy - 2x + 3$
 $y - xy = -2x + 3 = y$

Polynomial Inverses

6) $h(x) = (x+2)^5 + 2$
 $\sqrt[5]{y-2} = x+2$
 $\sqrt[5]{y-2} - 2 = x$

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

State if the given functions are inverses.

8) $h(x) = \frac{1}{4}x - \frac{3}{4}$
 $f(x) = 4x + 3$
 A) $f(h(x)) = 4\left(\frac{1}{4}x - \frac{3}{4}\right) + 3 = x - 3 + 3 = x$
 B) $h(f(x)) = \frac{1}{4}(4x + 3) - \frac{3}{4} = x + \frac{3}{4} - \frac{3}{4} = x$
 C) yes / no

9) $f(n) = 2n^3$
 $h(n) = \sqrt[3]{n+2}$
 A) $h(f(x)) = \sqrt[3]{2n^3 + 2} = \sqrt[3]{2n^3 + 2} \neq n$
 B) $f(h(x)) = 2(\sqrt[3]{n+2})^3 = 2(n+2) \neq n$
 C) yes / no

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

