

Algebraically Finding Inverses and Proving Inverses

Directions: Find the inverse algebraically and write in inverse function notation.

1) $f(x) = 15x - 1$

2) $f(x) = -5x - 11$

3) $f(x) = 2x - 10$

4) $f(x) = \frac{1}{2}x + 7$

5) $f(x) = (x - 2)^2$

6) $f(x) = \sqrt{x - 4}$

7) $f(x) = -4x^2 - 10$

8) $f(x) = 4(x + 8)^2$

9) $f(x) = \sqrt[3]{2x + 7}$

10) $f(x) = 27(x - 1)^3$

Directions: State if the given functions are inverses. Show all work algebraically!

$$11) \begin{aligned} g(x) &= -\frac{1}{2}x - \frac{3}{2} \\ f(x) &= -2x - 3 \end{aligned}$$

$$12) \begin{aligned} g(x) &= -\frac{1}{3}x - \frac{5}{3} \\ f(x) &= \frac{-x-2}{2} \end{aligned}$$

$$13) \begin{aligned} f(x) &= \frac{2}{3}x - \frac{2}{3} \\ g(x) &= 1 + \frac{3}{2}x \end{aligned}$$

$$14) f(x) = \frac{8+7x}{4}$$

$$g(x) = \frac{4x-8}{7}$$

$$15) f(x) = \frac{-2x-6}{5}$$

$$g(x) = \frac{-6-5x}{2}$$

$$16) f(x) = \sqrt[3]{x-3} - 2$$

$$g(x) = \sqrt[3]{x} - 1$$

$$17) f(x) = (x + 5)^5 - 3$$

$$g(x) = \sqrt[5]{x + 3} - 1$$

$$18) h(n) = -\frac{2}{n+1} + 2$$

$$f(n) = \frac{2}{-n+2} - 1$$