

Name: _____

Inverse Functions

1) Determine whether each function is one - to - one

1) $3y - 5x = 8$

2) $2x - 9 = 6y + 2$

3) $x^2 + y = 3$

4) $|x| + 3y = 4$

5) $-3x + 4|y| + 8 = 0$

2) Find the inverse function if it exists for each of the following functions.

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

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

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

4) $f(x) = x^2 - 3$

5) $f(x) = x^3 + 9$

6) $f(x) = x^3 - 11$

7) $f(x) = \sqrt{3x^4} + \sqrt{2}$

8) $f(x) = \sqrt{5x^4} + \sqrt{7}$

9) $f(x) = \frac{x-4}{x-2}$

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

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

12) $f(x) = \frac{-x-6}{4x-5}$

3) Find the inverse of the function $f(x) = \frac{2}{x-1}, x \in \mathbb{R}, x \neq 1$

4) The functions f and g are defined by $f(x) = \frac{x^3}{4}$ and $g(x) = x - 2$

1) Find the function fg

2) Find f^{-1} and g^{-1}

5) Show that f and g are inverse functions

$$f(x) = 3x - 2, \quad g(x) = \frac{x+2}{3}$$

6) Find $f^{-1}(x)$ if possible.

$$f(x) = \sqrt{2+5x}$$