

## Inverse Function

Find the inverse  $f^{-1}(x)$  for the given function  $f(x)$ .

1.

$$f(x) = x^3 + 1$$

2.

$$f(x) = (x + 1)^3$$

3.

$$f(x) = 3x^5 + 2$$

4.

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

5.

$$f(x) = \frac{2x + 3}{4x - 7}$$

6.

$$f(x) = \frac{x + 1}{3x - 5}$$

7.

$$f(x) = \frac{3x - 4}{2x + 5}$$

8.

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

Solutions:

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

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

3.  $f^{-1}(x) = \sqrt[5]{\frac{x-2}{3}}$

4.  $f^{-1}(x) = (x - 5)^3 - 1$

5.  $f^{-1}(x) = \frac{7x+3}{4x-2}$

6.  $f^{-1}(x) = \frac{5x+1}{3x-1}$

7.  $f^{-1}(x) = \frac{4+5x}{3-2x}$  (same as  $\frac{-4-5x}{2x-3}$ )

8.  $f^{-1}(x) = \frac{x}{2-x}$  (same as  $\frac{-x}{x-2}$ )