## Exercise 42

For the following exercises, find the inverse function. Then, graph the function and its inverse.

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

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### Solution

In order to find the inverse function, switch $x$ with $y$ in the given equation.

$$x = \frac{3}{y-2}$$

Now solve for $y$.

$$x \times (y-2) = \frac{3}{y-2} \times (y-2)$$

$$xy - 2x = 3$$

$$xy = 3 + 2x$$

$$y = \frac{3+2x}{x}$$

Therefore, the inverse function is

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