

## Exercise 74

For the following exercises, find  $f^{-1}(x)$  for each function.

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

### Solution

To find the inverse function, switch  $x$  and  $y$  in the given equation.

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

Solve for  $y$ .

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

$$xy + 2x = y$$

$$2x = y - xy$$

$$2x = (1-x)y$$

$$\frac{2x}{1-x} = y$$

Therefore, the inverse function is

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

