Exercise 60

Exercises 59–68 tell in what direction and by what factor the graphs of the given functions are to be stretched or compressed. Give an equation for the stretched or compressed graph.

$$y = x^2 - 1, \quad \text{compressed horizontally by a factor of 2}$$

Solution

Replace x with $2x$ to compress the graph horizontally by a factor of 2.

$$y = (2x)^2 - 1 = 4x^2 - 1$$