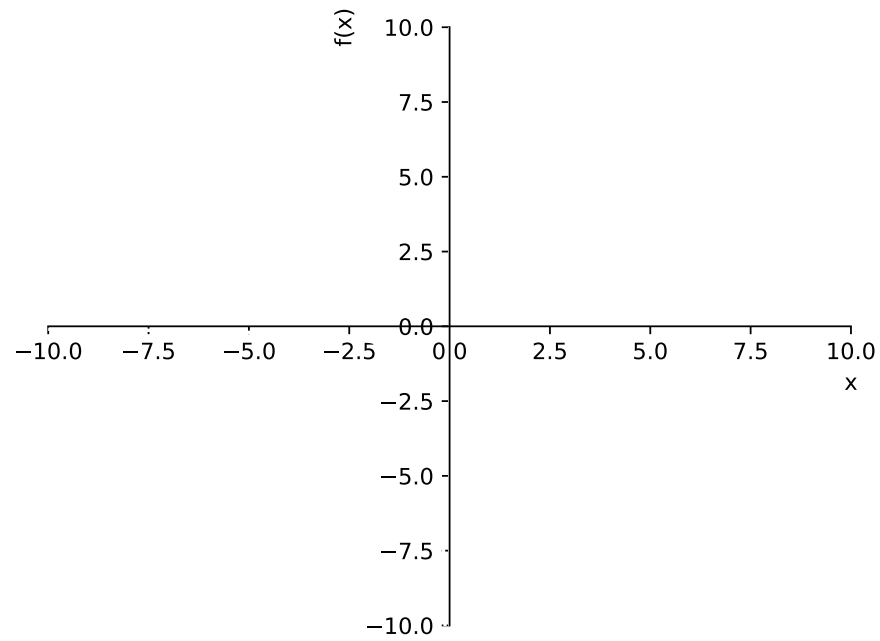# 1 Graphing Functions

1.1 Questions

1. Sketch the graph of the following function:
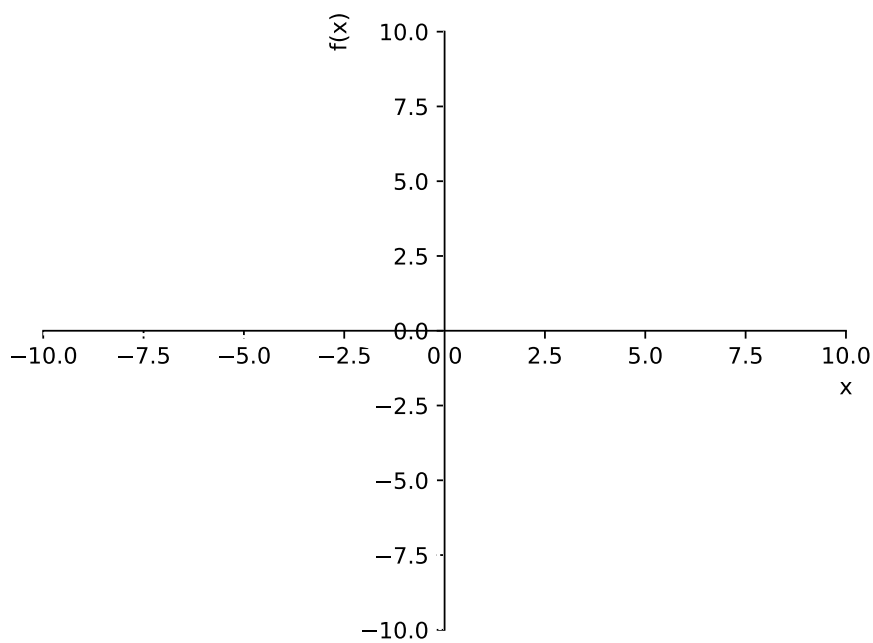
$$y = \frac{1}{x} \tag{1}$$

Solution:

2. Sketch the graph of the following function:
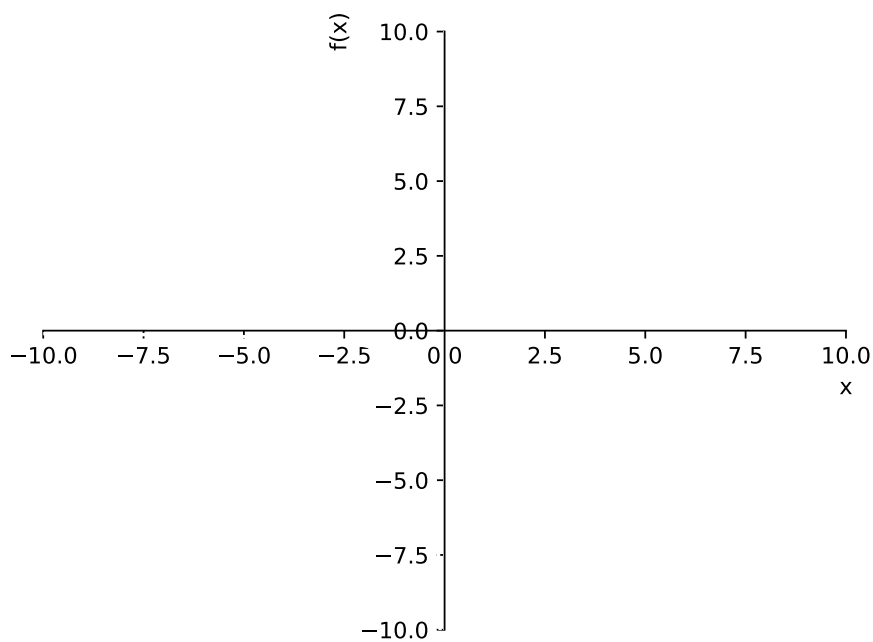
$$y = \frac{x}{(x-1)^2} \qquad (2)$$

Solution:

3. Sketch the graph of the following function:
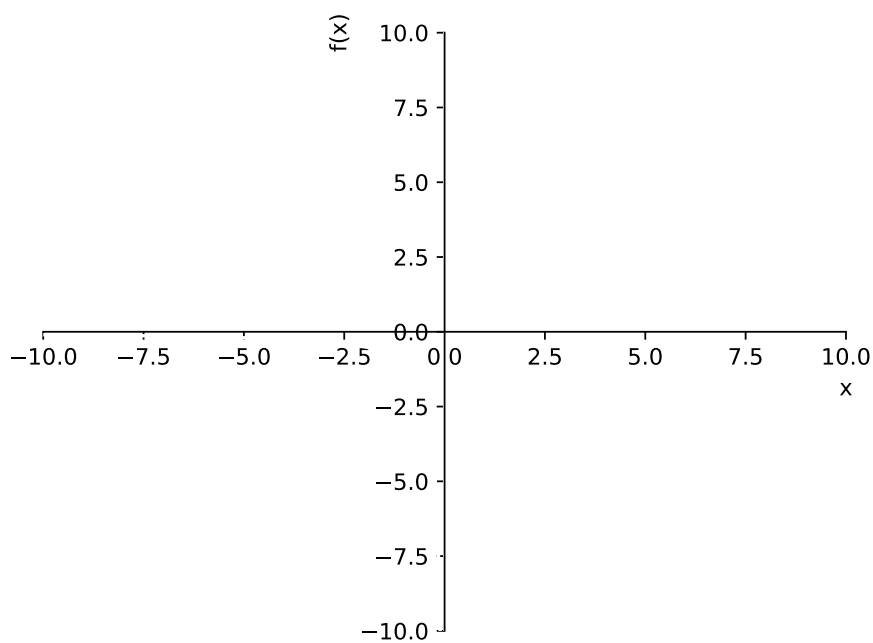
$$y = \frac{(x+1)^2}{(x-2)(x-1)}$$

(3)

Solution:

4. Sketch the graph of the following function:
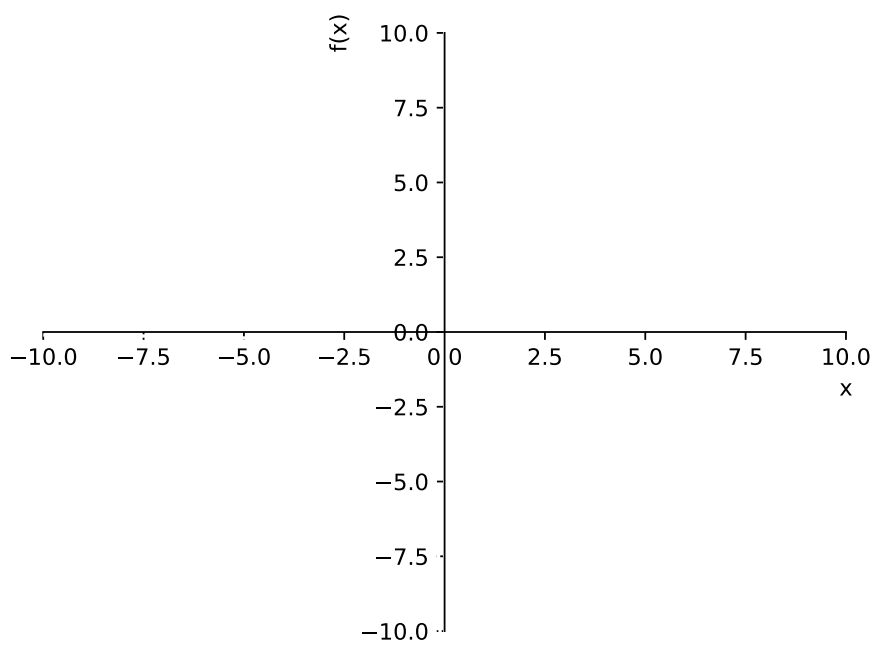
$$y = \frac{1}{x}\left(x^2 + 4\right) \tag{4}$$

Solution:

5. Sketch the graph of the following function:
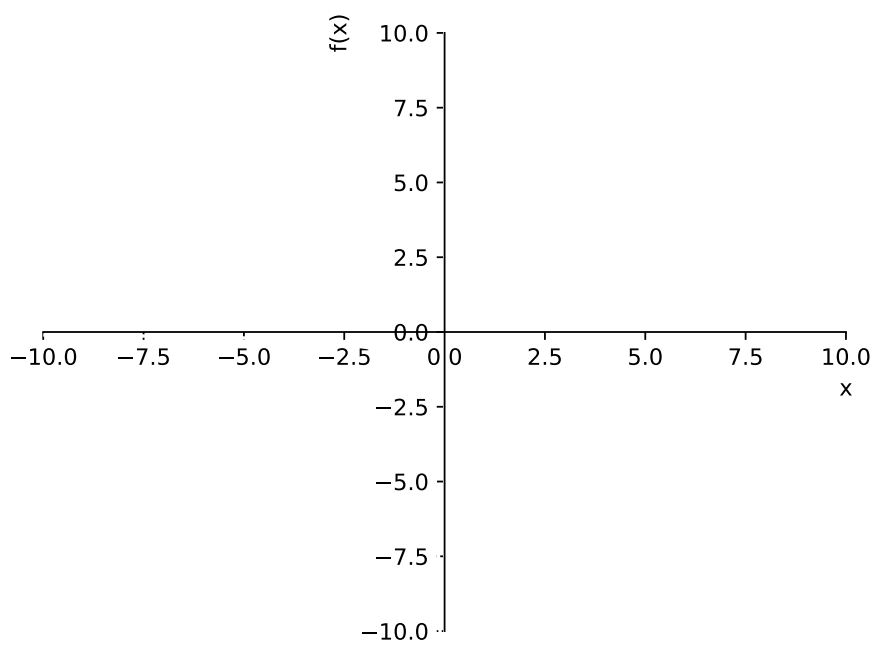
$$y = \frac{x+1}{-x+1} \tag{5}$$

Solution:

6. Sketch the graph of the following function:
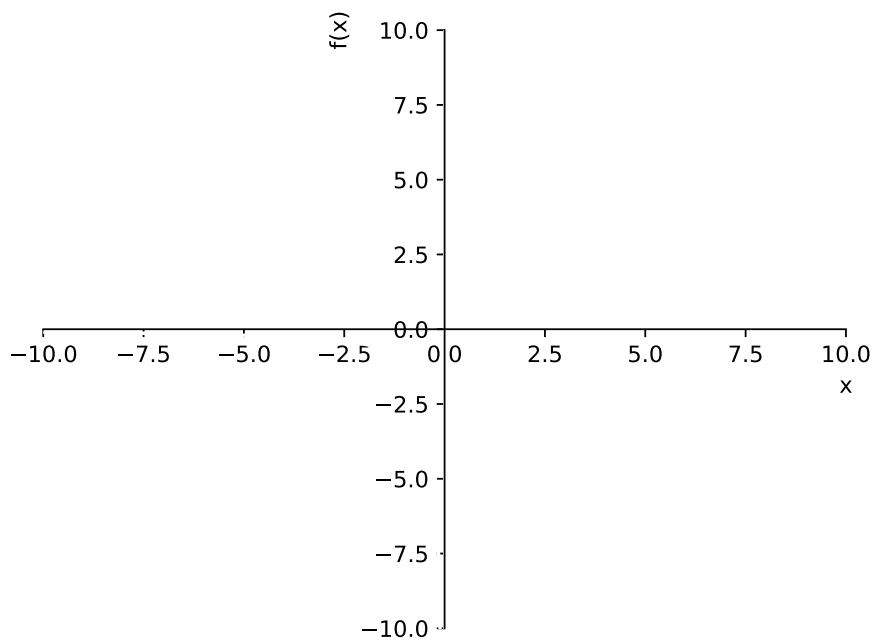
$$y = \frac{x - 1}{x + 1} \tag{6}$$

Solution:

7. Sketch the graph of the following function:
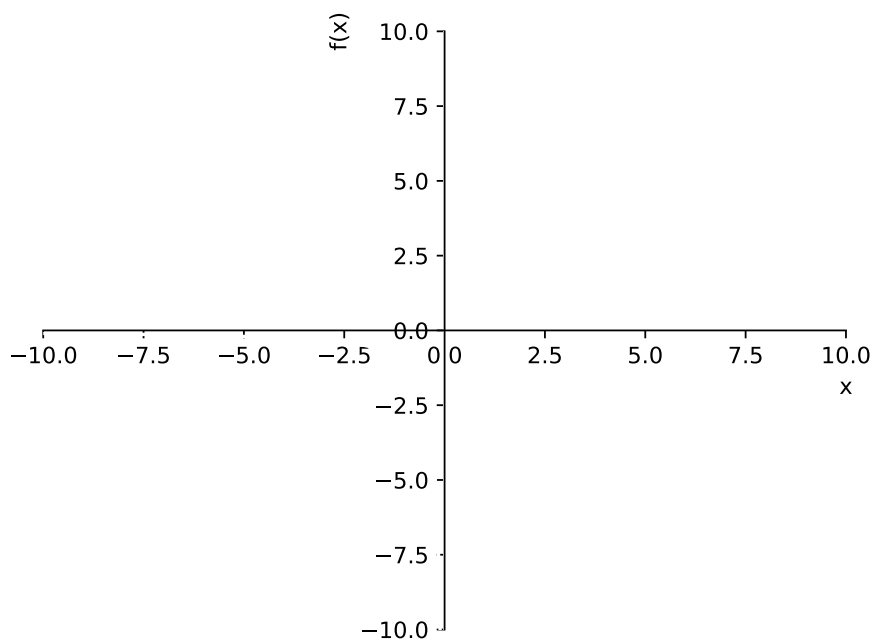
$$y = \frac{(x+1)(x+2)}{(x-2)(x-1)} \tag{7}$$

Solution:

8. Sketch the graph of the following function:

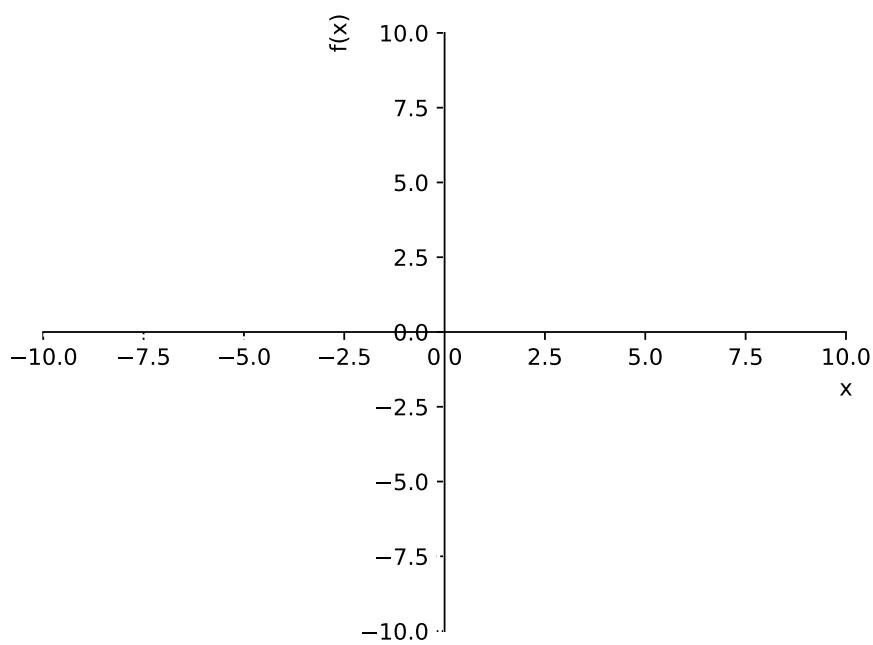$$y = \frac{1}{x\left(x^2 + 1\right)} \tag{8}$$

Solution:

9. Sketch the graph of the following function:
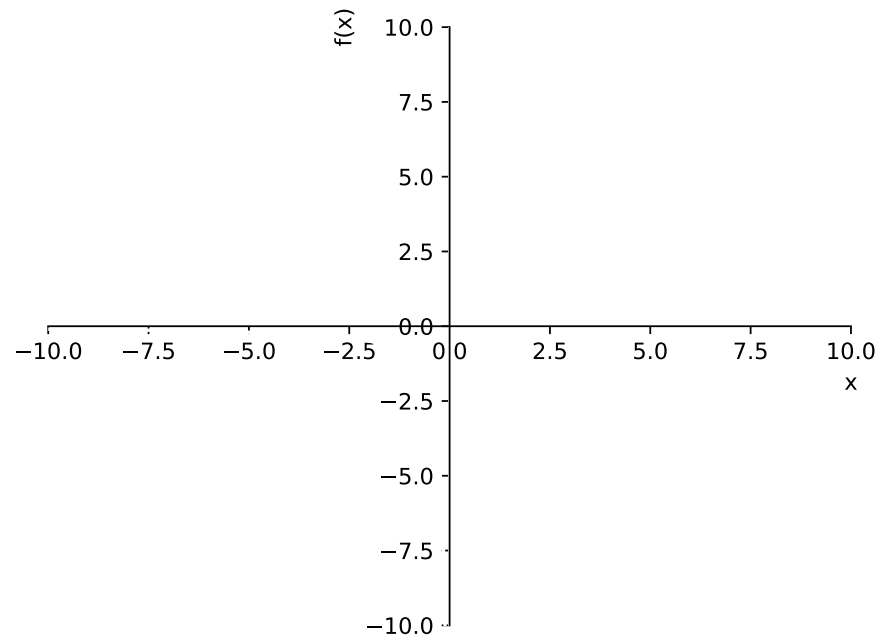
$$y = \frac{1}{x+1} (x-1) (x^2 + 2x + 1) \tag{9}$$

Solution:

10. Sketch the graph of the following function:

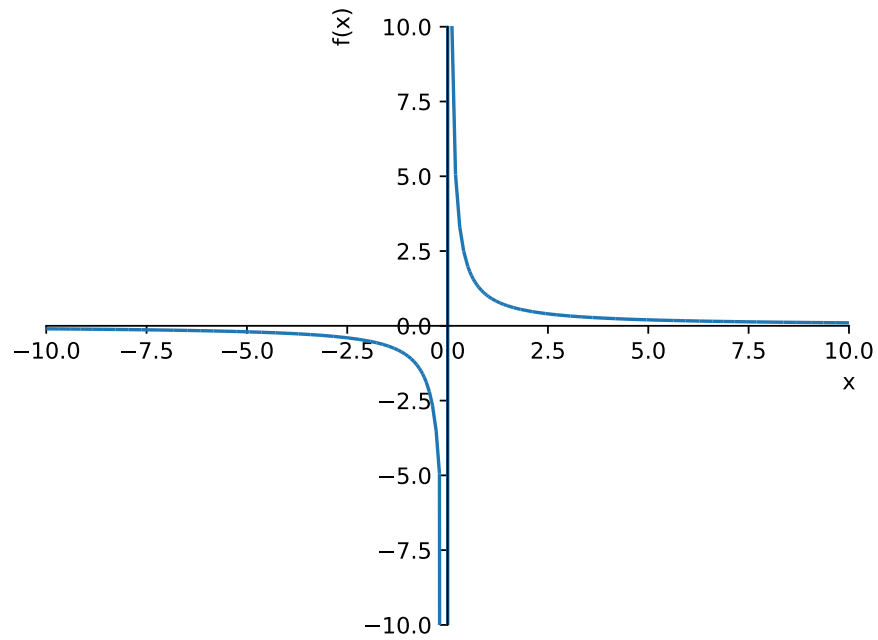$$y = \sin\left(\frac{1}{x}\right) \tag{10}$$

Solution:

1.2 Solutions

1. Sketch the graph of the following function:
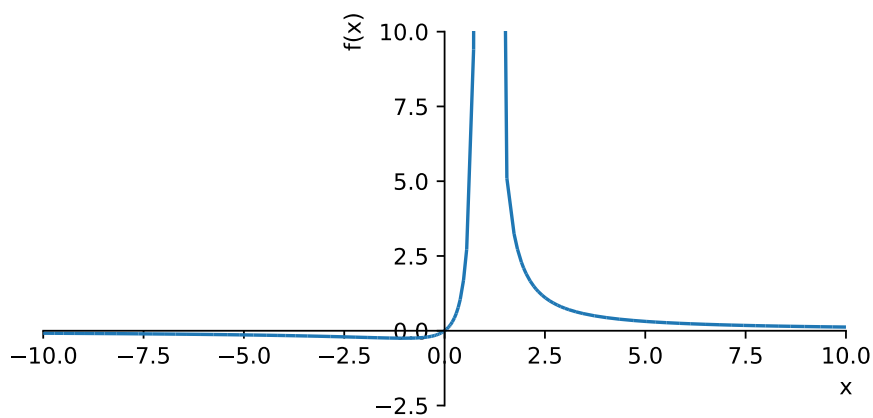
$$y = \frac{1}{x} \tag{11}$$

Solution:

2. Sketch the graph of the following function:
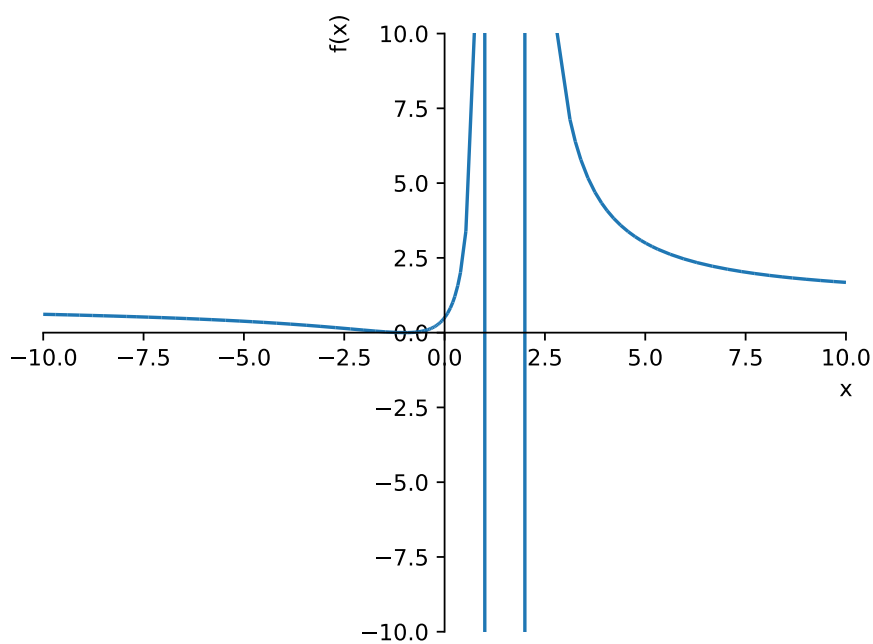
$$y = \frac{x}{(x-1)^2} \qquad (12)$$

Solution:

3. Sketch the graph of the following function:
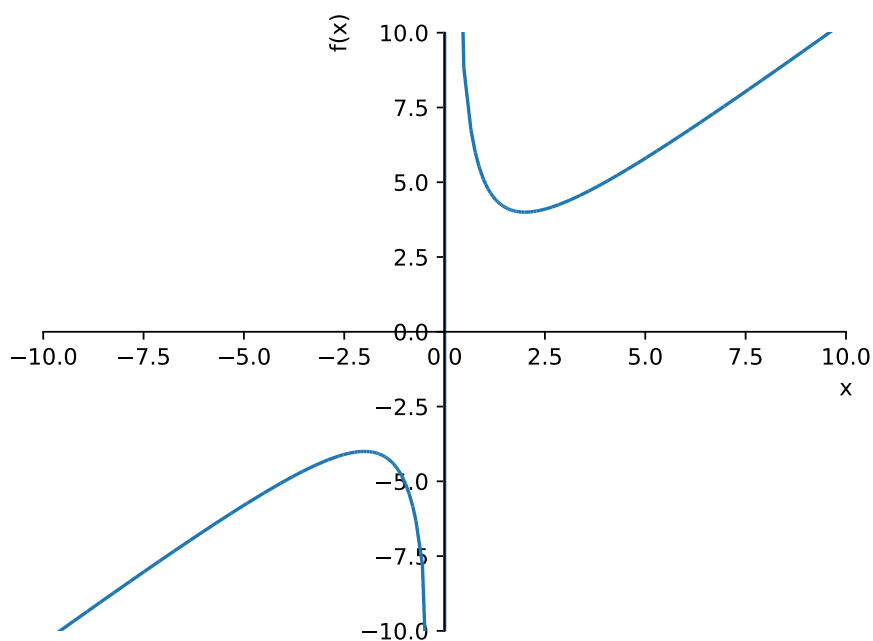
$$y = \frac{(x+1)^2}{(x-2)(x-1)} \tag{13}$$

Solution:

4. Sketch the graph of the following function:
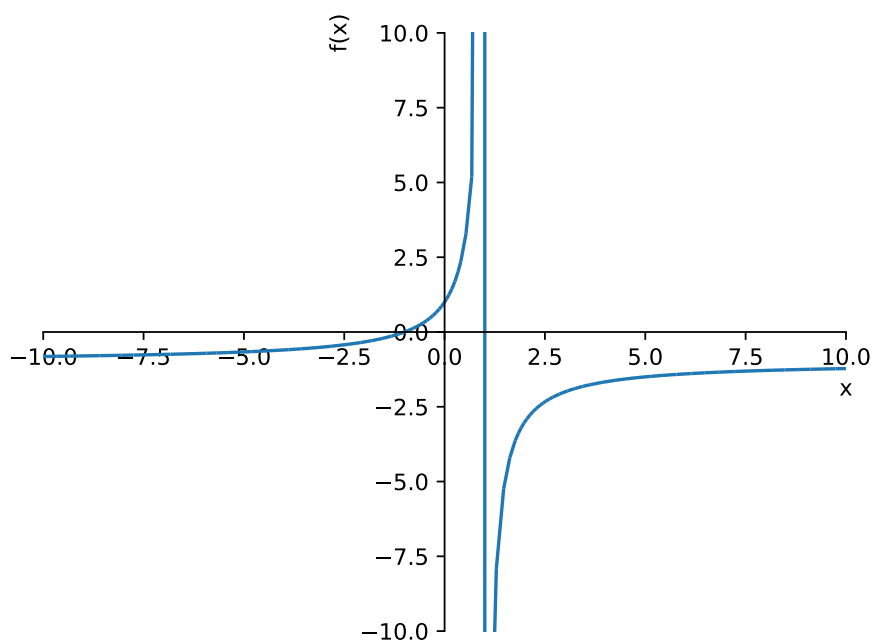
$$y = \frac{1}{x}\left(x^2 + 4\right) \tag{14}$$

Solution:

5. Sketch the graph of the following function:
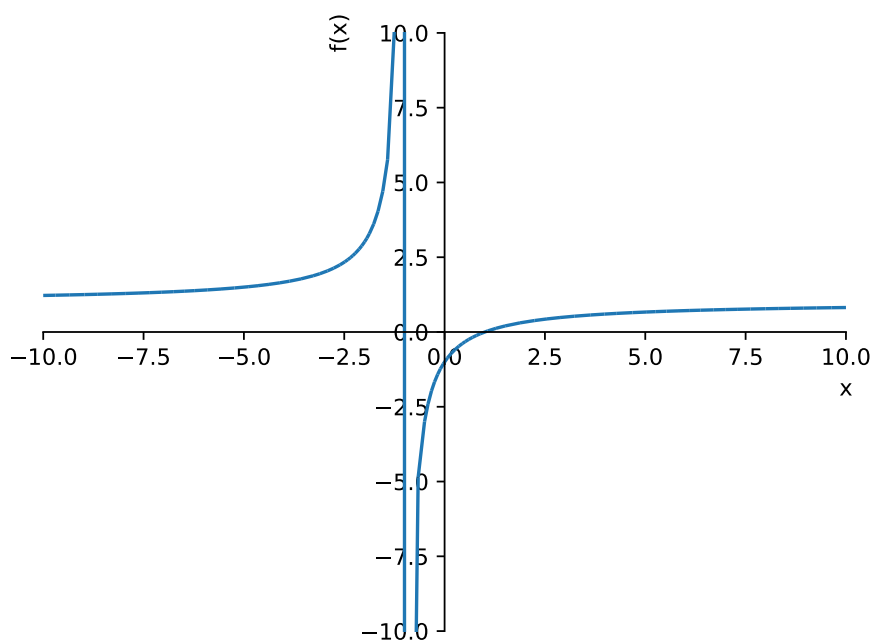
$$y = \frac{x+1}{-x+1} \tag{15}$$

Solution:

6. Sketch the graph of the following function:
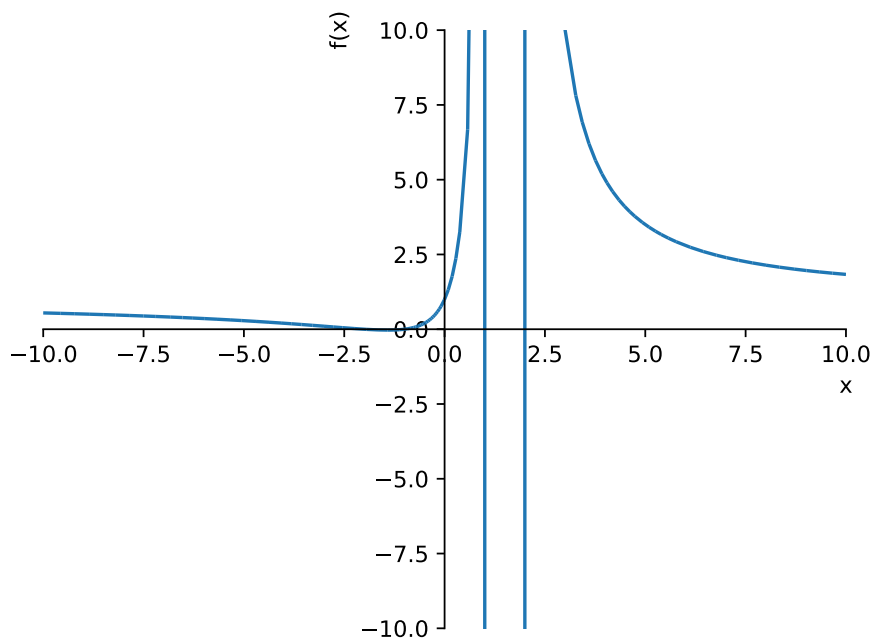
$$y = \frac{x - 1}{x + 1} \tag{16}$$

Solution:

7. Sketch the graph of the following function:
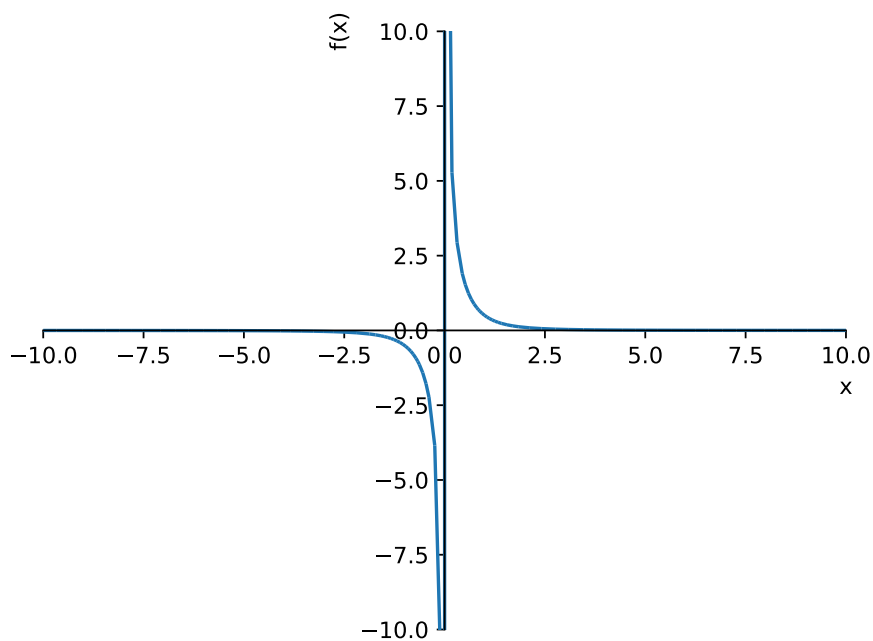
$$y = \frac{(x+1)(x+2)}{(x-2)(x-1)} \tag{17}$$

Solution:

8. Sketch the graph of the following function:
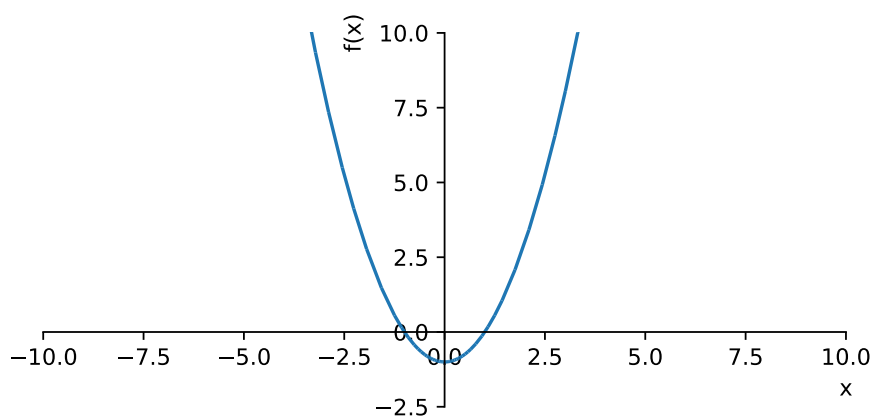
$$y = \frac{1}{x\left(x^2 + 1\right)} \tag{18}$$

Solution:

9. Sketch the graph of the following function:

$$y = \frac{1}{x+1} (x-1) \left(x^2 + 2x + 1\right) \tag{19}$$

Solution:

10. Sketch the graph of the following function:

$$y = \sin\left(\frac{1}{x}\right) \tag{20}$$

Solution: