

Name:

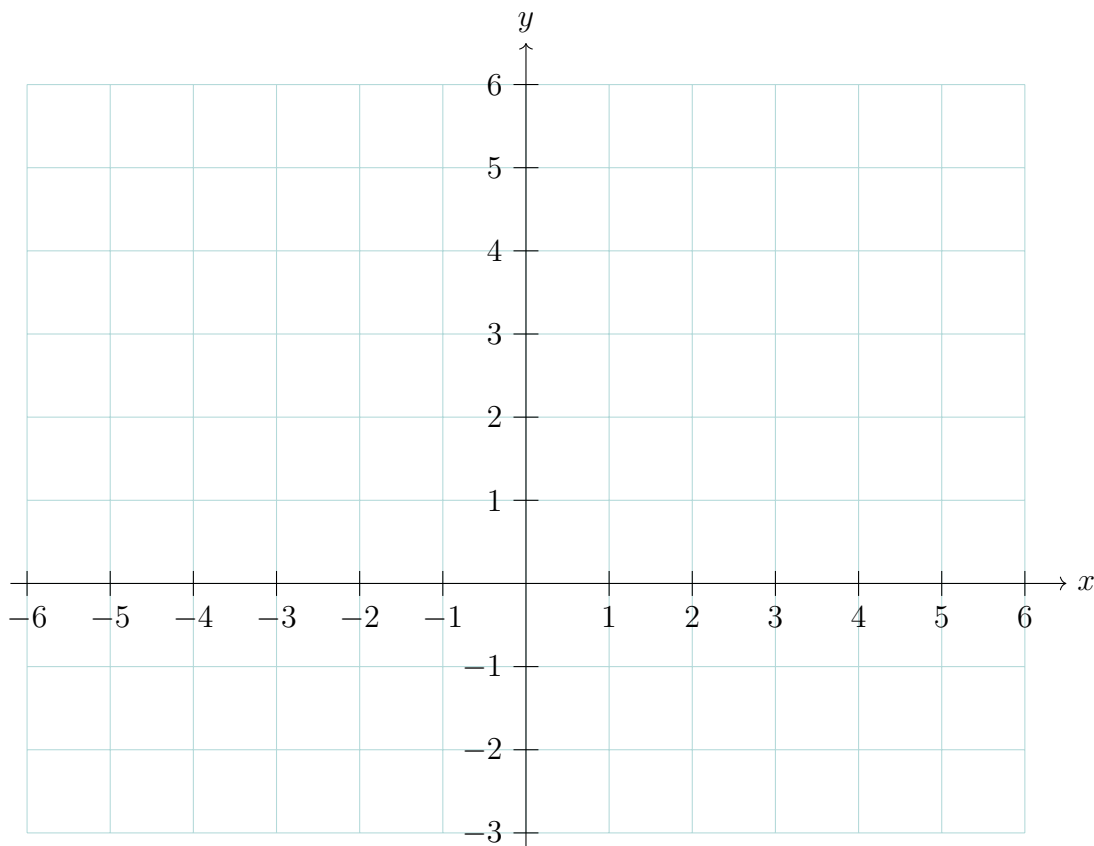
Group 1

Result:

1.

(6 points)

On the grid below sketch the graph of $f(x) = \frac{|x| - 2}{|x| + 1}$. You should clearly indicate any asymptotes and axis intercepts.



(b) Using the graph, or otherwise, state the values of m , for which the equation:

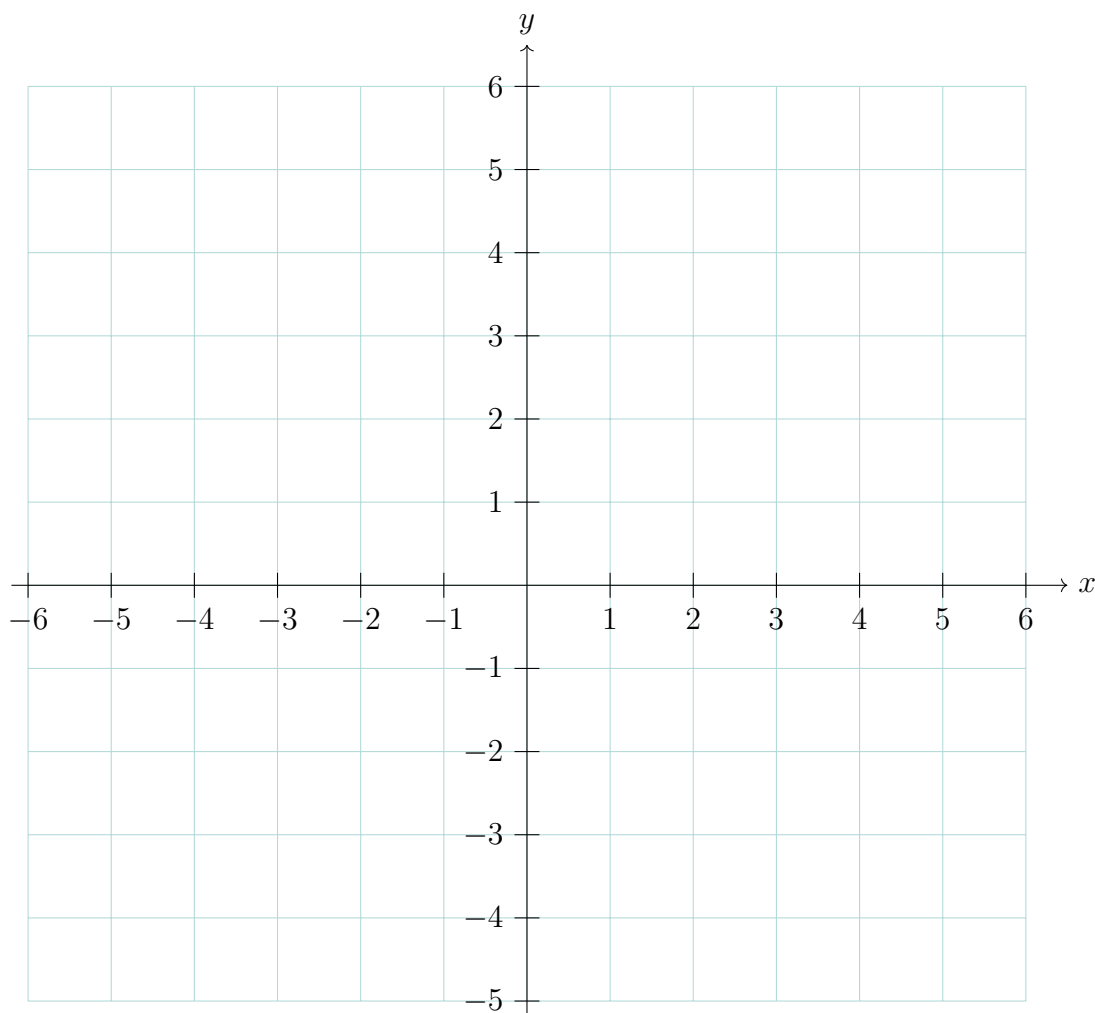
$$\frac{|x| - 2}{|x| + 1} = m$$

has exactly 2 solutions.

2.*(6 points)*

Consider the function $f(x) = x^2 - 2x - 3$.

- (a) Sketch the graph of $g(x) = \frac{1}{f(x)}$. Clearly indicate any asymptotes, axis intercepts and local minima/maxima.



- (b) State the domain and range of $g(x)$.

3.*(8 points)*

Consider the functions $f(x) = \frac{2x - 7}{x - 3}$ and $g(x) = 3 - \sqrt{4 - 2x}$.

(a) Write down the sequence of transformations that maps the graph of $y = \frac{1}{x}$ onto the graph of $y = f(x)$.

(b) Write down the sequence of transformations that maps the graph of $y = \sqrt{x}$ onto the graph of $y = g(x)$.

(c) Sketch both functions.

