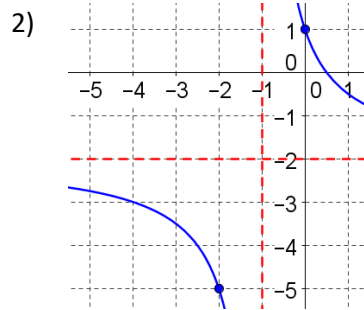
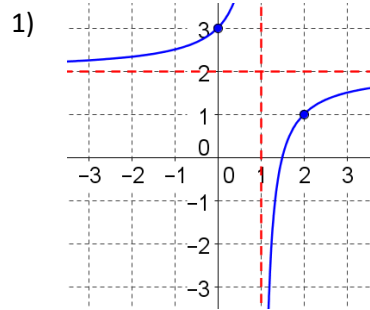


SM3: 3.4: Rational Graph Transformations

Describe how $\frac{1}{x}$ was transformed to build each function:



3) $y = \frac{53}{x + 75}$

4) $y = -\frac{7}{x} - 2000$

Sketch the function with the given transformations.

5) $p(x)$ is $\frac{1}{x}$ but shifted to the left by 2, shifted down by 3, and vertically flipped.

6) $q(x)$ is $\frac{1}{x}$ but shifted up by 3, and vertically stretched by a factor of 2.

7) $r(x) = \frac{x^2 - 1}{x + 1} + 2$

8) $r(x) = \frac{x - 3}{x^2 - 2x - 3} - 1$

Simplify and sketch the function. Describe the asymptotic behavior of the function using limit notation:

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

10) $g(x) = \frac{3x + 2}{x + 1}$

11) $h(x) = \frac{2x + 5}{3x - 3}$

Simplify and sketch the function. State the increasing interval(s) and decreasing interval(s) of each function:

12) $j(x) = \frac{-x + 1}{x + 2}$

13) $k(x) = \frac{2x + 1}{x - 3}$

14) $m(x) = \frac{5x - 3}{2x}$