

Lesson #2: Reciprocal of a Quadratic Function

Example #1:

a) Sketch the graph of $y = (x + 2)(x - 3)$

b) For the graph of: $y = \frac{1}{(x+2)(x-3)}$

Describe the key features

i) any restrictions:

$$x \neq -2, 3$$

$$y \neq 0$$

iii) the domain and range:

$$D = \{x \mid x \neq -2, 3, x \in \mathbb{R}\}$$

$$R = \{y \mid y \neq 0, y \in \mathbb{R}\}$$

ii) the intercepts

No x intercepts ($y \neq 0$)

$$y \text{ intercept } -\frac{1}{6}$$

iv) find the equation of the asymptotes.

v) Describe the behavior of the function near the asymptotes.

vi) Sketch the function: $y = \frac{1}{(x+2)(x-3)}$

