

## Polynomial and Rational Inequalities

Graph the function then determine if above or below the x-axis and if the x-intercepts are included or not.

$$P(x) = x^2 - 2x - 3$$

$$P(x) > 0 \quad P(x) < 0 \quad P(x) \geq 0 \quad P(x) \leq 0$$

$$Q(x) = -2x^2 + 7x - 5 = -(2x^2 - 7x + 5) = -(2x - 5)(x - 1)$$

$$Q(x) > 0 \quad Q(x) < 0 \quad Q(x) \geq 0 \quad Q(x) \leq 0$$

$$T(x) = 2x^2 - 4x + 3$$

$$T(x) > 0 \quad T(x) < 0 \quad T(x) \geq 0 \quad T(x) \leq 0$$

$$h(x) = x^5 + 3x^4 - 18x^3 - 40x^2 = x^2(x + 2)(x - 4)(x + 5)$$

$$h(x) > 0 \quad h(x) < 0 \quad h(x) \geq 0 \quad h(x) \leq 0$$

$$f(x) = \frac{x-3}{x+1}$$

$$f(x) > 0 \quad f(x) < 0 \quad f(x) \geq 0 \quad f(x) \leq 0$$

$$j(x) = \frac{x(x+2)}{x(2x-3)} \Rightarrow j(x) = \frac{(x+2)}{(2x-3)}$$

$$j(x) > 0 \quad j(x) < 0 \quad j(x) \geq 0 \quad j(x) \leq 0$$

$$\text{Solve } \frac{14}{x^2-9} \geq -2$$