

**Notes 1/31**

Solve the inequalities.

1.

$$\frac{x^2(x+1)}{(x-3)(x+4)} \geq 0$$

2.

$$\frac{|x+1|}{x^2-5x+4} \leq 0$$

3.

$$\frac{|x|(x+1)^3}{|x-1|^5(x+2)^2} < 0$$

4.

$$\frac{3x-1}{x^2+x+1} \leq 0$$

Find the domain.

5.

$$f(x) = \sqrt{x(x-3)(x+5)}$$

6.

$$f(x) = \sqrt{\frac{x^2(x-2)}{x+15}}$$

Solve the inequalities.

7.

$$(7-x^2)(2+\sqrt{3x-1}) > 0$$

8.

$$\begin{cases} 3x-1 > 0 \\ 7x-4 \leq 0 \end{cases}$$

Find the domain.

9.

$$f(x) = \sqrt{1-7x} + \sqrt{2x+13}$$

10.

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

Solve the inequalities.

11.

$$\begin{cases} 2x^2-3x-2 \leq 0 \\ 4x+1 > 0 \end{cases}$$

12.

$$\begin{cases} 2x^2-3x-2 \geq 0 \\ x^2-2x-15 < 0 \end{cases}$$