Notes Section 2.8 Solving Inequalities in One Variable- Polynomial Inequalities

Examples:

1) Determine the x-values that cause the polynomial function to be
   a) zero **b)** positive $f(x) > 0$ **c)** negative $f(x) < 0$

   $f(x) = (2x^2 + 5)(x - 8)^2 (x + 1)^3$

   Using a SIGN CHART

   Process

   1) Find the key numbers and draw a number line arranging the key numbers from least to greatest
   2) Determine the test intervals
   3) Choose an x value in each interval to test
   4) Interpret the results and answer all questions

2) Solve the polynomial inequality using a sign chart. Factor first!

   $x^2 - 5x - 6 < 0$

3) Solve the polynomial inequality using a sign chart. Factor first!

   $(x + 1)(x^2 - 3x + 2) \geq 0$

4) Solve the polynomial inequality using a sign chart.

$3x^3 - 4x^2 - 12x > -16$

5) Solve the polynomial inequality using a sign chart.

$3x^2 - 11x > 4$

6) Solve the polynomial inequality using a sign chart.

$(x+2)^2 \leq 25$

Notes Section 2.8 Solving Inequalities in One Variable- Rational Inequalities

1) Solve the inequality using a sign chart

$$\frac{x-1}{x^2-4} < 0$$

* key numbers for rational inequalities:

Zeros (numerator =0)
Undefined Values (denominator=0)

2) Solve the inequality using a sign chart

$$\frac{x^2+x-12}{x^2-4x+4} > 0$$