**Solving Polynomial Inequalities: Friday, October 1st, 20107**

**First**

Quiz on The Remainder and Factor Theorem

**Then**

**Solving Polynomial Inequalities**

* How do we express inequalities?

a is:

a < b less than

a > b greater than

a < b less than or equal to

a > b greater than or equal to

* What does an inequality mean?

It means lack of equality, so how do we express inequalities in math?

Well, there are 2 ways:

**1.**

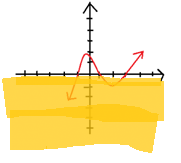
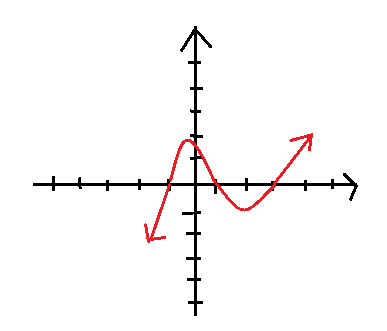
****

Meaning: x > -1



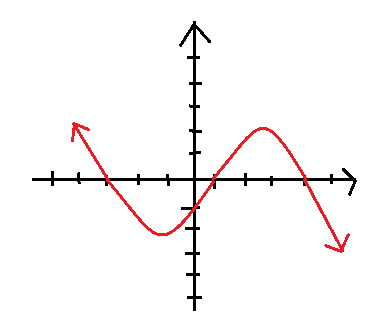
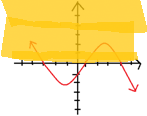
Meaning: -2 < x < 1

**2.**



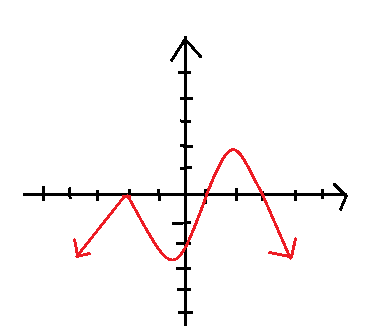
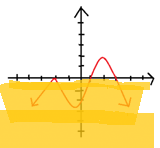
When is f(x) < 0? x < -1

1 < x < 3

Solve: 0 < -1/2 (x-1)(x+3)(x-4) x < -3

1 < x < 4

** **

Solve: -(x+2)^2 (x-1)(x-3) < 0 x < 1 x> 3

x -2 *OR* -2 < x < 1

x < -2

\* IMPORTANT: Make sure to carefully read the function as this one states that the function has to be greater than zero. Therefore, when writing the inequalities for this function the x values cannot equal to -2, 1, or 3.

Solve: m^3 – 7m + 6 < 0

\* IMPORTANT: Need to factor this function first in order to solve for the zeros and state the inequalities.

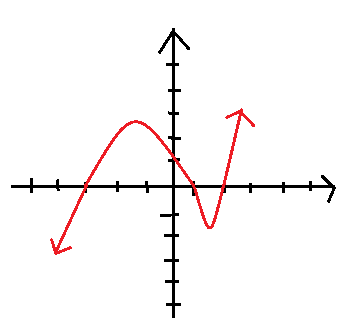
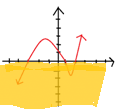
f(1) = 0 1 1 0 -7 6

(m-1) 1 1 -6

1 1 -6 0 So, m^2 + m – 6

= (m+3) (m-2)

Therefore the roots are: (m-1)(m+3)(m-2)

m < -3

1 < m < 2

\* Here is an excellent web link that will help you practice:

<http://www.dpcdsb.org/NR/rdonlyres/0436904B-E4B3-4B0C-8E78-BBF5497B9229/30662/311SolvingPolynomialInequalities.pdf>