# MHF 4U Chapter 2 Review:
# Polynomials Equations & Inequations

## Division of Polynomials

- The process of long division is very similar to long division with numbers.
- _____ division is an easier alternative to long division as long as you have a _____divisor where the coefficient of the variable is _____
- If the coefficient is not _____ divide it out and do your division in two parts. First divide by the linear factor (this may require working with _____) and when you are done, divide the answer by the _____ factor (Note : the remainder will NOT be divided by the constant factor)

## Remainder Theorem

- When P(x) is divided by (x-b) the remainder will be equal to _____
- When P(x) is divided by (ax-b) the remainder will be equal to _____

## Factor Theorem

- To find a linear factor of a polynomial, we need to find a value that makes the polynomial _____.
- The easiest numbers to try are whole numbers that are _____ (positive and negative) of the _____term.
- Fractional values can also make the polynomial zero. A polynomial of degree **n** will have a _____ of $(ax-b)$ if $P\left(\frac{b}{a}\right)=0$, where a is a factor of the $x^n$ _____ and b is a factor of the _____ term.
- You can factor the sum and difference of _____, in the following manner

$$(a^3+b^3)=(a+b)(\_\_\_\_\_)$$

$$(a^3-b^3)=(a-b)(\_\_\_\_\_)$$

## Solving Polynomial Equations

- To solve a polynomial equation
  1. first _____ the equation to make one side zero.
  2. _____ the equation as much as possible.
  3. set each factor equal to _____ and solve for the unknown.
- if you can not factor a quadratic factor further, you can use the _____ _____ to solve for the unknown.
- you can solve for the unknown in factors of degrees higher than ___ by typing them into a graphing calculator and finding the _____

## Solving Polynomial Inequations

- To solve an inequation (without technology)
  1. follow the steps to solving equations and find all the _____
  2. check the _____ of the function in all the intervals between zeros
  3. determine which intervals satisfy the inequation (<0 means the function is _____; >0 means the function is _____)
- To solve an inequation (with technology)
  1. arrange the _____ so that one side is equal to zero
  2. find all the zeros of the function using **2nd TRACE 2:_____**
  3. look at the graphed function to determine when it is >0 (_____ the x-axis) or <0 (_____ the x-axis)

# *Suggested Study Questions*

*Anything from pages 140 - 143 – don't do them all, but at least look at them and be sure that you know how to do them. The chapter test is strongly suggested*

***Key Questions: Pg 140 #6, 11, 13, 16***
***Pg 142 #7, 10, 13, 17***