Pre-Calculus 30   **Chapter 3 Review**

Definition of polynomial

Synthetic Division

Remainder Theorem

- If *P(x)* is divided by *x – a*, the remainder is *P(a)*
- If *P(x)* ÷ *(x – a) = 0*, then *x – a* is a factor of the polynomial

Graphing ***Odd*** Degree Polynomials – have 1 to *n* zeros (x-intercepts)

- Positive lead term – start in Quadrant III and end in Quadrant I
- Negative lead term – start in Quadrant II and end in Quadrant IV

Graphing ***Even*** Degree Polynomials – have 0 to *n* zeros (x-intercepts)

- Positive lead term – start in Quadrant II and end in Quadrant I
- Negative lead term – start in Quadrant III and end in Quadrant IV

Factoring – GCF, difference of squares, factoring trinomials, synthetic division

Sketching graphs

- Find x-intercepts (let y = 0). If necessary, factor. Look at factors and their multiplicity to decide on the behaviour of the graph at each zero.
- y-intercept (constant term…or let x = 0)
- Look at leading term (degree and coefficient) and decide on ***end behaviour***
- Be able to state intervals where the function is positive and where it is negative

Sketching graphs using transformations

- $y = a(b(x-h))^n + k$. Use mapping notation to sketch the transformed graph.

Word Problems

Review Questions: Page 153 #1, 2, 3, 4cd, 5, 6, 7, 8, 10, 11, 12c, 13, 14a, 15