W3 – 2.2 – Factor Theorem
MHF4U

1) Determine if $x + 3$ is a factor of each polynomial:

a) $x^3 + x^2 - x + 6$ **b)** $2x^3 + 9x^2 + 10x + 3$ **c)** $x^3 + 27$

2) Find possible factors of the following polynomials using integral zero theorem. Then, factor the polynomial.

a) $x^3 + 3x^2 - 6x - 8$ **b)** $x^3 + 4x^2 - 15x - 18$ **c)** $x^3 - 3x^2 - 10x + 24$

3) Factor by grouping:

a) $x^3 + x^2 - 9x - 9$ **b)** $2x^3 - x^2 - 72x + 36$

4) Determine a value of k so that x+2 is a factor of $x^3 - 2kx^2 + 6x - 4$.

5) Find possible factors of the following polynomials using integral zero theorem. Then, factor the polynomial.

a) $3x^3 + x^2 - 22x - 24$

b) $2x^3 - 9x^2 + 10x - 3$

c) $6x^3 - 11x^2 - 26x + 15$

d) $4x^3 + 3x^2 - 4x - 3$

6) Factor each polynomial

a) $2x^3 + 5x^2 - x - 6$

b) $4x^3 - 7x - 3$

c) $x^4 - 15x^2 - 10x + 24$