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)
$$x^3 + 3x^2 - 6x - 8$$

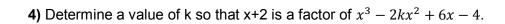
b)
$$x^3 + 4x^2 - 15x - 18$$
 c) $x^3 - 3x^2 - 10x + 24$

c)
$$x^3 - 3x^2 - 10x + 24$$

3) Factor by grouping:

a)
$$x^3 + x^2 - 9x - 9$$

b)
$$2x^3 - x^2 - 72x + 36$$



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