Name: _____ Date: _____

Learning Goal 3.2	Factoring, including the factor theorem and the remainder theorem.

Example Which of the following number is 7 a factor of? How do you know?

56 92 759 812

Example Find the remainder when $x^3 - 6x^2 + 7x + 6$ is divided by $x - 3$?

a. Synthetic/Long Division b. Remainder Theorem c. So is $x - 3$ a factor?

The Factror Theorem	**Integral Zero Theorem**

Example Which of the following could be a factor of $x^3 + 5x^2 + 2x - 8$?

$x + 2$ $x - 7$ $x - 8$ $x + 16$

Show which of these, if any, is a factor.

Example Verify that $2x - 3$ is a factor of $2x^3 - 5x^2 - x + 6$ in two different ways.

Example For what values of k will $x - 3$ be a factor of $2x^3 - kx^2 - 4x + 3$?

Example Factor $x^3 - x^2 - 5x - 3$ fully.