Dividing Polynomials Using Synthetic Division

$5x^3 - 2x^2 + 3x - 4 \div x + 3$

Long Division   **Synthetic Division**

** We can use Synthetic Division when the divisor is a 1st degree binomial

NOTE: For both long division and synthetic division the divisor and the dividend must be in the correct order (descending degrees) and no terms can be missing (use zero as place holder).

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Synthetic Division Example 1

   x³ + 3x² – 9x – 20   divided by   x + 4

Synthetic Division Example 2

   2x³ – 9x + 5   divided by   x - 2

NOTE: What if the binomial divisor is NOT of the form (x-a)???
Synthetic Division Example 3

   6t³ – t² + 5t + 2   divided by   3t + 1

Homework: Textbook pg 168-169 #6(all), 7-9(eoq)