Section 5-4 Dividing Polynomials

Students will be able to divide polynomials using long division and synthetic division.

We are going to look at how to use long division to divide polynomials.

When you factor a polynomial, you are trying to find a divisor of the polynomial that gives a quotient (other factor) and remainder 0.
-suggests that being able to divide one polynomial by another can help factor.

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Divide using long division:

Using the same steps, divide:

$$2x + 1 | 6x^{2} + 7x + 2$$

$$- \frac{4x + 2}{4x + 2}$$

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Use long division to divide $3x^2 - 29x + 56$ by x - 7

$$\begin{array}{c} 3x - 8 \\ x - 7 \overline{\smash{\big)}3x^2 - 29x + 66} \\ -3x^2 + 2|x \\ -48x + 96 \\ \hline 0 \end{array}$$

Divide
$$5x^2 + 2x + 3$$
 by $x + 1$

$$5x - 3, R$$

$$-3x^2 + 2x + 3$$

$$-5x^2 + 6x$$

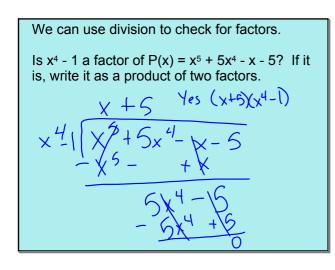
$$-3x + 3$$

$$-3x + 3$$

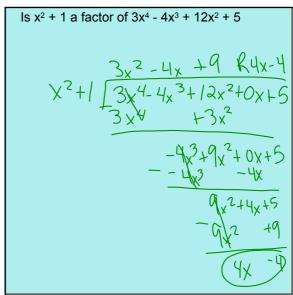
$$-3x + 3$$

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