

Warm Up

$$1) 3t^2(7t - t^3 - 3)$$

$$21t^3 - 3t^5 - 9t^2$$

$$-3t^5 + 21t^3 - 9t^2$$

$$t^2 \cdot t^3$$

$$t \cdot t \cdot t \cdot t \cdot t = t^5$$

$$3t^2 \begin{array}{|l} 7t & -t^3 & -3 \\ \hline 21t^3 & -3t^5 & -9t^2 \end{array}$$

$$2) (-y)(6y^2 + 5y)$$

$$-6y^3 - 5y^2$$

Homework Questions?

10.2 Multiplying Polynomials

Goals: • Multiply polynomials.

EQ: What are the three different methods for multiplying polynomials?

Vocabulary FOIL pattern: (multiplying 2 binomials)

FOIL
 First, Outside, Inside, Last

Example 1: Use the Distributive Property

$(x-5)(x+7) =$
 $x(x+7) + -5(x+7)$
 $x^2 + 7x - 5x - 35$
 $x^2 + 2x - 35$

Example 2: Multiply Binomials Using the FOIL Pattern

$(x-5)(7x+1) =$
 F: $7x^2$, O: $+1x$, I: $-35x$, L: -5
 $7x^2 - 34x - 5$

Box Method

	$7x$	1
x	$7x^2$	x
-5	$-35x$	-5

$7x^2 - 34x - 5$

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Try It Use the FOIL pattern to find the product.

1. $(x+2)(x-5)$

2. $(3x-1)(2x-3)$

$x^2 - 5x + 2x - 10$

$x^2 - 3x - 10$

Example 3: Multiplying Polynomials VerticallyFind the product $(4 - x)(8 - 11x + x^2)$.

$$\begin{array}{r} \textcircled{32} - \underline{44x} + \underline{4x^2} - \underline{8x} + \underline{11x^2} - \underline{x^3} \end{array}$$

$$-x^3 + 15x^2 - 52x + 32$$

Example 4: Multiplying Polynomials HorizontallyFind the product $(2x^3 - 9x^2 - 11x)(2 - x^2)$.

$$\begin{array}{r} 2x^3 - 9x^2 - 11x \\ \begin{array}{|c|c|c|} \hline 2 & \underline{4x^3} & -18x^2 - 22x \\ \hline -x^2 & -2x^5 & 9x^4 + 11x^3 \\ \hline \end{array} \end{array}$$

$$-2x^5 + 9x^4 + 15x^3 - 18x^2 - 22x$$

Try It

Use a vertical format to find the product. Write your answer in standard form.

3. $(x + 5)(x^2 - 2x + 3)$

4. $(x - 2)(2x^2 - 6 - x)$

	x^2	$-2x$	3
x	x^3	$-2x^2$	$3x$
5	$5x^2$	$-10x$	15

$$x^3 + 3x^2 - 7x + 15$$

Use a horizontal format to find the product. Write your answer in standard form.

5. $(x - 4)(x^2 - 7x + 4)$

6. $(11x^2 + 7x - 3)(-5x + 1)$

Homework

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(48-54 use Box Method)