

3.7

Multiplying Polynomials

Lesson 9

Connect

Multiplying Polynomials

Method 1: Distributive Property

Expand: $(2h + 5)(h^2 + 3h - 4)$

$$2h(h^2 + 3h - 4) + 5(h^2 + 3h - 4)$$

$$2h^3 + 6h^2 - 8h + 5h^2 + 15h - 20$$

$$2h^3 + 6h^2 + 5h^2 - 8h + 15h - 20$$

$$2h^3 + 11h^2 + 7h - 20$$

Jan 30-4:12 PM

Jan 30-4:17 PM

Connect

Multiplying Polynomials

Method 1: Distributive Property

Expand: $(-3f^2 + 3f - 2)(4f^2 - f - 6)$

$$-12f^4 + 3f^3 + 18f^2 + 12f^3 - 3f^2 - 18f - 8f^2 + 2f + 12$$

$$-12f^4 + 15f^3 + 7f^2 - 16f + 12$$

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Multiplying Polynomials

Method 2: Vertical Math

$$(2x + 5)(x^2 + 3x - 4)$$

$$\begin{array}{r} x^2 + 3x - 4 \\ 2x + 5 \\ \hline 5x^2 + 15x - 20 \\ 2x^3 + 6x^2 - 8x \quad 0 \\ \hline 2x^3 + 11x^2 + 7x - 20 \end{array}$$

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Multiplying Polynomials

Method 2: Vertical Math

$$\begin{array}{r}
 (-3f^2 + 3f - 2)(4f^2 - f - 6) \\
 \underline{-3f^2 + 3f - 2} \\
 4f^2 - f - 6 \\
 \hline
 +12f^2 - 18f + 12 \\
 3f^3 - 3f^2 + 2f \quad 0 \\
 \hline
 -12f^4 + 12f^3 - 8f^2 \quad 0 \quad 0 \\
 \hline
 -12f^4 + 15f^3 + 7f^2 - 16f + 12
 \end{array}$$

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Connect

Multiplying Polynomials

Expand: $(3k + 4)(k^2 - 2k - 7)$

$$\begin{array}{r}
 k^2 - 2k - 7 \\
 \underline{3k + 4} \\
 4k^2 - 8k - 28 \\
 \hline
 3k^3 - 6k^2 - 21k \quad 0 \\
 \hline
 3k^3 - 2k^2 - 29k - 28
 \end{array}$$

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Practice

YOU TRY!

Expand: $(-2t^2 + 4t - 3)(5t^2 - 2t + 1)$

$$\begin{array}{r}
 -2t^2 + 4t - 3 \\
 \underline{5t^2 - 2t + 1} \\
 -2t^2 + 4t - 3 \\
 \hline
 4t^3 - 8t^2 + 6t \quad 0 \\
 \hline
 -10t^4 + 20t^3 - 15t^2 \quad 0 \quad 0 \\
 \hline
 -10t^4 + 24t^3 - 25t^2 + 10t - 3
 \end{array}$$

Jan 30-4:17 PM

Practice

HOMEWORK!

Textbook Questions:

Page 186 # 4,8,9,10,13,14

Jan 30-4:17 PM