

3.7

Multiplying Polynomials

Lesson 10

Connect

Multiplying Polynomials

Method 1: Distributive PropertyExpand: $(2r + 5t)^2$

$$\begin{aligned} & (2r + 5t)(2r + 5t) \\ & 2r(2r + 5t) + 5t(2r + 5t) \\ & 4r^2 + 10rt + 10rt + 25t^2 \\ & \boxed{4r^2 + 20rt + 25t^2} \end{aligned}$$

Steps:

Write the meaning of the polynomial.

Multiply each term in the first polynomial by each term in the second polynomial.

Collect like terms

Write the expression

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Connect

Multiplying Polynomials

Method 1: Distributive PropertyExpand: $(3x - 2y)(4x - 3y + 5)$

$$\begin{aligned} & 3x(4x - 3y + 5) - 2y(4x - 3y + 5) \\ & 12x^2 - 9xy + 15x - 8xy + 6y^2 - 10y \\ & 12x^2 + 15x - 17xy - 10y + 6y^2 \end{aligned}$$

Steps:

Multiply each term in the first polynomial by each term in the second polynomial.

Collect like terms

Write the expression

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Method 2: Vertical Math $(2r + 5t)^2$

$$\begin{array}{r} 2r + 5t \\ 2r + 5t \\ \hline 10rt + 25t^2 \\ 4r^2 + 10rt + 0 \\ \hline 4r^2 + 20rt + 25t^2 \end{array}$$

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Method 2: Vertical Math

$$\begin{array}{r} (3x - 2y)(4x - 3y + 5) \\ 4x - 3y + 5 \\ \underline{3x - 2y} \\ -8xy + 6y^2 - 10y \\ \underline{12x^2 - 9xy \quad 15x + 0} \\ 12x^2 - 17xy + 15x - 10y + 6y^2 \end{array}$$

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Expand: $(4k - 3m)^2$

$$\begin{array}{r} (4k - 3m)(4k - 3m) \\ 16k^2 - \underline{12km} - \underline{12km} + 9m^2 \\ 16k^2 - 24km + 9m^2 \end{array}$$

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Practice

YOU TRY!

Expand: $(2v - 5w)(3v + 2w - 7)$

$$\begin{array}{r} 2v(3v + 2w - 7) - 5w(3v + 2w - 7) \\ 6v^2 + 4vw - 14v - 15vw - 10w^2 + 35w \\ \boxed{6v^2 - 14v - 11vw + 35w - 10w^2} \end{array}$$

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Practice

HOMEWORK!

Textbook Questions:

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