

# 5.5

## Multiplication of Polynomials

### • Example 1

Multiply.

$$(2x + y - z)(3x - 2y + 4z)$$

We begin by using the distributive property.

$$(2x + y - z)(3x - 2y + 4z)$$

$$= (2x + y - z) \cdot 3x + (2x + y - z) \cdot (-2y) + (2x + y - z) \cdot 4z$$

$$= 2x \cdot 3x + y \cdot 3x - z \cdot 3x + 2x \cdot (-2y) + y \cdot (-2y) - z \cdot (-2y) \\ + 2x \cdot 4z + y \cdot 4z - z \cdot 4z$$

$$= 6x^2 + 3xy - 3xz - 4xy - 2y^2 + 2yz + 8xz + 4yz - 4z^2$$

$$= 6x^2 - xy + 5xz - 2y^2 + 6yz - 4z^2$$

### ● ● ● CHECK YOURSELF 1

Multiply.

$$(8x - 3y + 2z)(x + 4y - z)$$

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### ● ● ● CHECK YOURSELF ANSWER

1.  $8x^2 + 29xy - 12y^2 - 6xz + 11yz - 2z^2$ .

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# 5.5 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

Multiply

1.  $(x - 4y + z)(8x + 2y - z)$

2.  $(3x + 2y + 2z)(2x - 4y + 8z)$

3.  $(x + y + z)(x - y - z)$

4.  $(x + y + z)(x + y + z)$

5.  $(x - y - z)(3x - 4y + 2z)$

6.  $(2x - 3y + z)(4x + 5y - 2z)$