

# UNIT 1 • RELATIONSHIPS BETWEEN QUANTITIES

## Lesson 1: Interpreting Structure in Expressions

### Instruction

### Guided Practice 1.1.1

#### Example 1

Identify each term, coefficient, constant, and factor of  $2(3 + x) + x(1 - 4x) + 5$ .

1. Simplify the expression.

The expression can be simplified by following the order of operations and combining like terms.

$$\begin{array}{ll} 2(3 + x) + x(1 - 4x) + 5 & \text{Distribute 2 over } 3 + x. \\ 6 + 2x + x(1 - 4x) + 5 & \text{Distribute } x \text{ over } 1 - 4x. \\ 6 + 2x + x - 4x^2 + 5 & \text{Combine like terms: } 2x \text{ and } x; 6 \text{ and } 5. \\ 11 + 3x - 4x^2 & \end{array}$$

It is common to rearrange the expression so the powers are in descending order, or go from largest to smallest power.

$$-4x^2 + 3x + 11$$

2. Identify all terms.

There are three terms in the expression:  $-4x^2$ ,  $3x$ , and  $11$ .

3. Identify any factors.

The numbers or expressions that, when multiplied, produce the product  $-4x^2$  are  $-4$  and  $x^2$ . The numbers or expressions that, when multiplied, produce the product  $3x$  are  $3$  and  $x$ .

4. Identify all coefficients.

The number multiplied by a variable in the term  $-4x^2$  is  $-4$ ; the number multiplied by a variable in the term  $3x$  is  $3$ ; therefore,  $-4$  and  $3$  are coefficients.

5. Identify any constants.

The number that does not change in the expression is  $11$ ; therefore,  $11$  is a constant.

