

## TOPIC: EVALUATING EXPRESSIONS

### Evaluating Expressions

◆ An algebraic expression combines \_\_\_\_\_ and \_\_\_\_\_ using operations.

► **Variables:** letter which represents any number/value

► **Coefficients:** number multiplied by a variable

► **Constants:** number without a variable

**New**

**Algebraic Expressions**

The diagram shows the expression  $2x + 5$  inside a box. The number 2 is red, the variable  $x$  is green, the plus sign is black, and the number 5 is blue. Below each part is a horizontal line for labeling: a red line under the 2, a green line under the  $x$ , and a blue line under the 5.

◆ To *evaluate* an algebraic expression, \_\_\_\_\_ the variable(s) with a given value(s).

### EXAMPLE

Evaluate the following algebraic expressions at the given values.

(A)  $2x + 5; x = 4$

(B)  $\frac{1}{2}a + 4b; a = 10, b = -6$

(C)  $-8y^3; y = 2$

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### PRACTICE

Evaluate the following algebraic expression for the given value of  $x$ .

(A)  $x^2 + 4x + 6; \quad x = -2$

(B)  $7x^3 + 2x - 9; \quad x = 0$

### EXAMPLE

Given  $a$  and  $b$ , find the value of each expression.

(A)  $2a^2 + 5b; \quad a = -3, b = 4$

(B)  $a - 3b^2; \quad a = -5, b = 2$

### EXAMPLE

Evaluate the following expressions if  $x = -\frac{3}{2}$  and  $y = 9$ .

(A)  $\frac{4x + 2}{3}$

(B)  $2x - 0.5y + 20$

## **TOPIC: EVALUATING EXPRESSIONS**

### **EXAMPLE**

Evaluate the following expression when  $x = 1$ ,  $y = 4$ ,  $z = -2$ .

$$2x + 3y - z^2$$