

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 algebraic expression $2x + 5$. The coefficient '2' is red, the variable 'x' is green, and the constant '5' is blue. Below each part is a horizontal line for labeling: a red line under '2', a green line under 'x', and a blue line under '5'. A red line also points from the text 'Variables' to the 'x', a green line points from 'Coefficients' to the '2', and a blue line points from 'Constants' to 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) $2x - 0.5y + 20$

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EXAMPLE

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

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