

Accuplacer Study Modules

TOPIC: Evaluating Algebraic Expressions

Khan Academy Link: <https://www.khanacademy.org/math/algebra/introduction-to-algebra/alg1-substitution/v/evaluating-expressions-in-two-variables>

Sample Problem:

Evaluate the expression $4(x + 3)^2 - 5x + 7$ if $x = 9$

When evaluating algebraic expressions, the basic idea is to follow order of operations

Parentheses

Exponents

Multiply and Divide from left to right

Add and Subtract from left to right

Before you can evaluate, you must **substitute** the given value in for your variable. –

Step 1: Substitute the 9 in for x throughout the expression

$$4(x + 3)^2 - 5x + 7$$
$$4(9 + 3)^2 - 5(9) + 7$$

Step 2: follow order of operations (PEMDAS) to complete your evaluation

$$4(9 + 3)^2 - 5(9) + 7$$
$$4(12)^2 - 5(9) + 7$$
$$4(144) - 5(9) + 7$$
$$576 - 45 + 7$$
$$531 + 7$$
$$524$$

NOTE: Parentheses

NOTE: Exponents

NOTE: Multiply

NOTE: The subtraction gets done first since we go left to right!

Record your answer: 524

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TOPIC: **Evaluating Algebraic Expressions**

Instructions: Evaluate each expression using the given values for the variable(s)

1. $5x + 9 - 4y + 3x - 10$
if $x = -3$ and $y = 4$

2. $4(x - 3) + 7(x + 5)$ *if $x = \frac{1}{2}$*

3. $3(x - 2)^2 - 4(x + 3)$ *if $x = -7$*

4. $10x - 5y + 3(x + 2y + 7)$
if $x = 0.5$ and $y = 6$