

Algebra 1 (Don't write blue text)

$$|-5| = -5 \quad |5| = 5$$

## Lesson 1.1 Evaluating Algebraic Expressions

- Evaluate expressions given the value of the variable(s)
- Solve word problems involving expressions where the values of the variables are given.
- Use Custom operations



$$\geq 3 \leq 5$$

Warm-up:

1. What are the order of operations?

PEMDAS

$$2(3 - 4(2) + 6) + 7.2$$

$$2(3 - 8 + 6) + 14$$

2. What's the difference between an expression and equation?

equation?  
has =

$$2(1) + 14$$

$$2 + 14$$

$$16$$

does not have =

3. Write an expression that has subtraction.

$$4 - 2$$

$$6x - 7y$$

4. Write an equation (that's true) that has addition.

$$2 + 2 = 4$$

$$4 + 3 = 7$$

Evaluate each expression for  $x = 8$

$$\therefore |4 - x| + 2$$

$$|4 - 8| + 2$$

$$|-4| + 2$$

$$4 + 2 = 6$$

$$\therefore \sqrt{2x} - 3$$

$$\sqrt{2(8)} - 3$$

$$\sqrt{16} - 3$$

$$4 - 3$$

$$1$$

Evaluate each expression for  $x = -3$  and  $y = 4$

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$$2x + 3y$$

$$2(-3) + 3(4)$$

$$-6 + 12$$

$$6$$

$$\frac{x+y}{x^2}$$

$$\frac{-3 + 4}{(-3)^2}$$

$$\neq \frac{3^2}{(-3)^2}$$

$$= \frac{1}{9}$$

All answers in my class should be EXACT unless otherwise specified. Do not round or approximate. Leaving answers as fractions is Perfectly fine.

Evaluate each expression for  $a = \frac{2}{3}$ ,  $b = 9$ , and  $c = -4$

$$2(9a^2 - 2b + 3c)$$

$$2\left(9\left(\frac{2}{3}\right)^2 - 2(9) + 3(-4)\right)$$

$$2\left(9\left(\frac{4}{9}\right) - 18 - 12\right)$$

$$2(4 - 18 - 12) = 2(-26) = -52$$


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$$\sqrt{b} - 3a + 2c$$

$$\sqrt{9} - 3\left(\frac{2}{3}\right) + 2(-4)$$

$$3 - 2 - 8$$

$$1 - 8$$

$$-7$$

$\frac{2}{3} \cdot \frac{2}{3} = \frac{4}{9}$      $\frac{9 \cdot 4}{1 \cdot 9} = \frac{36}{9} = 4$

Ex: You're building a shed out of nails (n), sheets of plywood (p), and 2x4s (w). The price of the shed is indicated by the expression

$$0.75n + 5.75p + 3w$$

How much would a shed cost that requires 60 nails, 12 sheets of plywood, and 24 2x4s?

$$0.75(60) + 5.75(12) + 3(24)$$

$$\$186$$

Custom (non-standard) operations:

These are invented operations to help your critical thinking and adaptation skills.

Ex: Let  $a \square b = \frac{4a}{b}$

Evaluate  $2 \square 7 = \frac{4(2)}{7} = \frac{8}{7}$

Evaluate  $4 \square 2 = \frac{4(4)}{2} = \frac{16}{2} = 8$

Make up your own custom operation, and create a problem that uses it. Use  $\star$  as the sign for it.

$$a \star b = 2b - a$$

$$a \star b = \frac{10b}{a}$$

$$-3 \star -2 = \frac{10(-2)}{-3}$$

$$\frac{20}{3}$$

$$a \star b = \frac{7b}{a}$$

$$1 \star -1 = \frac{7(-1)}{1} = -7$$

$$a \star b = 3a + b$$

$$a \star b = b - a + 15$$

$$3 \star 4 = 4 - 3 + 15 = 16$$

Homework:

You must write out the problem if it is an expression/equation. You don't need to write it if it has a bunch of words.

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#'s 4-7, 13, 14, 18, 20, 24, 25

## Attachments

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