

▶ Evaluating Expressions/Substitution

Fill in the guided notes as you watch the video in the Digital Toolbox.

- Use order of operations when _____ expressions.
 - In math, evaluating means to _____ the value of something.
- Evaluating is often used when an expression contains a _____ .
 - If you know the value of a variable, evaluate the expression by _____ that value into the expression wherever that variable is.
 - Then, use order of operations to _____ the expression and determine its final value.

▶ Example 1

Complete the example as you watch the video in the Digital Toolbox.

Evaluate the expression when $a = 1$, $b = 2$, $c = 3$, $d = 4$.

$$-a^2 + \frac{bc}{d}$$

Implement

Explain

Substitute all known values of the variables

Simplify using order of operations

▶ Example 2

Complete the example as you watch the video in the *Digital Toolbox*.

Evaluate the expression when $x = 3$, $y = 12$, $z = -2$.

$$xyz - x + y \div z^2$$

Implement**Explain**

Substitute all known values of the variables

Simplify using order of operations

▶ Example 3

Complete the example as you watch the video in the *Digital Toolbox*.

Determine which value of x makes the equation true.

$$\frac{2}{3}x - 6 = 5 \text{ when } x = 3 \text{ or } x = \frac{33}{2}$$

Implement**Explain**

Substitute in the value for x

Simplify the left side of the expression

When both sides are equal you have found the correct solution to the equation

 **Practice**

Complete the problems. Show your work.

Evaluate the expressions using $x = -1, y = -2$

1) $2xy^2 + 3x^3y$

2) $-3y + 7x - xy$

Evaluate the expression using $a = 5, b = 15$

3) $-ab + \frac{b}{a}$

4) $-\frac{1}{3}b + a$

Evaluate the expressions using $x = 2, y = -3$

5) $\frac{1}{4}x^2(xy)^2$

6) $\frac{4}{xy} \div x^2y$

Evaluate the expressions using $a = 4$, $b = 5$, $c = -1$

7) $ab + bc$

8) $\frac{b}{a} - \frac{c}{a}$

Determine which value is true for the equation.

9) $-3x + 16 = 43$ when $x = 9$ or $x = -9$

10) $\frac{x}{4} - 7 = -11$ when $x = -16$ or $x = 1$

11) $\frac{5}{2}(3x + 2) = 9$ when $x = \frac{8}{15}$ or $x = 30$

12) $12 - 7x = -2$ when $x = -2$ or $x = 2$