

UNIT 1: SIMPLIFY EXPRESSIONS

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Evaluating Expressions



Objectives: I can evaluate expressions and solve problems by evaluating expressions.

We have learned that, in an algebraic expression, letters can stand for numbers. When we **substitute** a specific value for each **variable**, and then perform the operations, it's called **evaluating** the expression.

Evaluating a variable expression

Example 1

Evaluate $18 + 2g$, for $g = 3$.

$18 + 2g$ (Substitute) Replace the variable

$18 + 2 \cdot 3$ Use the **order of operations** to solve. (Simplify) (evaluate)

$18 + 6$

24

Example 2

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

$2ab - \frac{c}{3}$ (Substitute) Replace the variable

$2 \cdot 3 \cdot 4 - \frac{9}{3}$ Use the **order of operations**

$24 - 3$ Mult Divide $\frac{MD}{AS}$ subtract

21

Practice

(Simplify) Evaluate each expression.

P E M D A S

1. $63 - 5x$, for $x = 7$

$63 - 5(7)$

$63 - 35$

28

2. $4(t + 3) + 1$, for $t = 8$

P $4[(8) + 3] + 1$

M $4(11) + 1$

A $44 + 1$

45

3. $6(g + h)$, for $g = 8$ & $h = 7$

$6[(8) + (7)]$ P

$6(15)$ M

90

Mental Math! $6(10+5)$
 $60 + 30$

Remember that a number beside a variable is multiplied.
 $2a$ means $2 \cdot a$

4. $2xy - z$, for $x = 4$, $y = 3$, and $z = 1$

$2(4)(3) - (1)$

$8(3) - 1$

$24 - 1$

23

5. $\frac{r+s}{2}$, for $r = 13$ and $s = 11$

P $\frac{(13) + (11)}{2}$

Div $\rightarrow \frac{24}{2} \Rightarrow 12$

6. Becky saves \$125 each year since her first birthday.

a) Write an expression for Becky's savings after 3 years. $3(125)$

b) Write an expression for Becky's savings after y years $125y$

c) When Becky is 14 years old, how much will she have saved? $\$1750$

$y = 14$

$125(14)$ or Mental Math Strategy!

$125(10+4)$

$1250 + 500$

$125(10) + 125(4)$