WARM-UP

Simplify the following expressions:

a) $4(x+2)$ $= 4x + 8$

b) $3(y-5)+2y$ $= 3y - 15 + 2y$
$= 5y - 15$

c) $2(a+1)-4(a-5)$ $= 2a + 2 - 4a + 20$
$= -2a + 22$

UNIT 1: Solving Algebraic Equations
Evaluating Expressions & Solving Equations

Learning Goal:

I will learn how to evaluate expressions and solve equations in one step.

Lesson A: Evaluating Expressions

Evaluating Expressions

To evaluate an expression when values are given for the variables:

1. Substitute the values for the variables in the expression and enclose each in brackets.

2. Simplify by following BEDMAS.

Lesson A: Evaluating Expressions

Examples:

Evaluate each expression for the given values.

a) $xy - 9$, when $x = 2$ and $y = 7$

$(2)(7) - 9$
$= 14 - 9$ $= 5$

b) $5n - 6$, when $n = -1$

$= 5(-1) - 6$
$= -5 - 6$ $= -11$

c) $\frac{x+y}{c-a}$ when $x = 4$, $y = 8$, $c = 1$, and $a = 3$

$= \frac{(4)+(8)}{(1)-(3)} = \frac{12}{-2} = -6$

d) $12g + h^2$, when $g = -1$, $h = -2$

$= 12(-1) + (-2)^2$
$= -12 + 4$
$= -8$

e) $\frac{xy}{(x+b)}$ when $x = 2$, $y = 10$, $b = 3$

$= \frac{(2)(10)}{(2)+(3)}$
$= \frac{20}{5}$
$= 4$

Your Turn!

Work with a partner to solve the "**Double Cross**" puzzle worksheet. Use a **separate piece** of paper to show your work.

Be sure to check your solutions by making sure your answer can be found in the puzzle.

Lesson B: Solving Equations in One Step

To solve equations means to:

- Find the value of the variable that makes the equation true, so that the left side is equal to the right side.
- You can use **opposite operations** to undo each operation. (addition → subtraction, multiplication → division)

Examples:

Solve the following equation by isolating the variable.

a) $x + 5 = -4$ (−5 −5)

$x = -9$

Check

LS: $x + 5 = -9 + 5 = -4$ RS: $= -4$ LS = RS ∴ correct!

b) $55 = a - 10$ (+10 +10)

$65 = a$

Check LS: $= 55$ ✓ RS: $= (65) - 10 = 55$ ✓ LS = RS.

c) $-14 + y = 30$ (+14 +14)

$y = 44$

Check LS: $-14 + (44) = 30$ ✓ RS: $= 30$ ✓ LS = RS.

Whatever you do on the left side of the equation sign, you must do on the right side!

UNIT 1: Solving Algebraic Equations

Solving Equations in One Step

Learning Goal:

I will learn how to solve equations in one step.

Success Criteria:

To be successful, I must be able to...

- Isolate the variable in the equation by using the opposite operations.
- Make the left side equal the right side of the "equals sign".

Example:

$y + 3 = -10$ (−3 −3)

$y = -13$

Homework:
"**Double Cross**" and
"**Moving Words**"
worksheets