



Name: _____

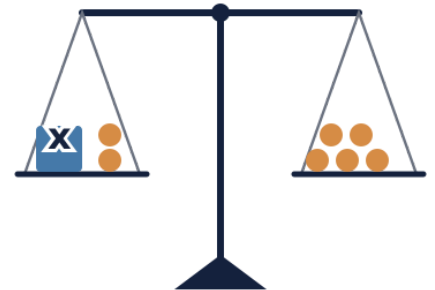
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Algebra Homework: One & Two-Step Equations

1. Quick Review: Keeping the Balance

Solving an equation is like balancing a scale. Whatever you do to one side of the equal sign ($=$), you must do to the other.

To isolate the variable (get the letter by itself), we use **Inverse Operations**. These are operations that "undo" each other.



Memory Check:

- The inverse of **Addition (+)** is **Subtraction (-)** The inverse of **Multiplication (\times)** is **Division (\div)**

2. Warm-Up: One-Step Equations

Start by isolating the variable using a single inverse operation. Be careful with negative numbers!

1. Solve for x: $x + 8 = 20$	a) $x = 28$ b) $x = 12$ c) $x = 160$ d) $x = 2.5$
2. Solve for y: $y - 5 = -2$	a) $y = 3$ b) $y = -7$ c) $y = 7$ d) $y = -3$
3. Solve for m: $4m = 24$	a) $m = 20$ b) $m = 96$ c) $m = 6$

	d) $m = 28$
4. Solve for k: $k \div 3 = 5$	a) $k = 15$ b) $k = 5/3$ c) $k = 2$ d) $k = 8$

3. Two-Step Equations

When solving two-step equations, order matters. Think of it as **Reverse BEDMAS**.

1. First, undo the addition or subtraction. Second, undo the multiplication or division.

Equation	Show Your Work	Final Solution
$2x + 3 = 13$		$x =$
$x/4 - 2 = 1$		$x =$
$-3n + 5 = -4$		$n =$

4. Detective Work: Spot the Error



A student tried to solve the equation $2x + 4 = 12$, but they made a mistake in their steps.

Student's Incorrect Work:

1. $2x + 4 = 12$
 $2x = 12 + 4$
 $2x = 16$
 $x = 8$

Explain what the student did wrong and provide the correct solution.

5. From Words to Math

Translate these real-world scenarios into algebraic equations and solve them.

- Let x represent the unknown value.

1. **Scenario 1:** A hockey team scored a total of 7 goals. They scored 3 goals in the first period, and an equal number of goals in the second and third periods. Which equation represents this?

- a) $2x + 3 = 7$
- b) $3x + 2 = 7$
- c) $x + 3 = 7$
- d) $2x - 3 = 7$



Scenario 2: It costs \$15 to enter the local fair, plus \$3 for every ride you go on. You spent a total of \$33. How many rides did you go on? (Write the equation and solve).

Equation:

Solution:

6. Challenge: The Storyteller 🖋️

Look at the equation below. Write your own word problem that would require this equation to solve it.

Equation: $5x + 10 = 35$

Answer Key

2. Warm-Up: One-Step Equations

Multiple Choice:

1. $x = 12$
2. $y = 3$
3. $m = 6$
4. $k = 15$

3. Two-Step Equations

1. $x=5$; 2. $x=12$; 3. $n=3$

4. Detective Work: Spot the Error

The student added 4 instead of subtracting 4 in the first step. Correct: $2x = 12 - 4$, so $2x = 8$, and $x = 4$.

5. From Words to Math

Multiple Choice:

1. $2x + 3 = 7$

Equation: $3x + 15 = 33$. Solution: $3x = 18$, so $x = 6$ rides.

6. Challenge: The Storyteller

Answers will vary. Example: 'I bought 5 binders and a \$10 pen. The total was \$35. How much did each binder cost?'