Mathematics Worksheet

Name:_____. **Date**:_____. **Grade**: 8th

Each section includes 5 questions based on your study guide topics. Read each question carefully and answer.

1-1 Solving Linear Equations

1. Solve for (x): 5x - 7 = 18

Ans:

2. Solve for (x): $\frac{2x}{3}$ + 4 = 10

Ans:

3. Explain why performing the same operation on both sides of an equation keeps the equality true.

Ans:

4. A taxi company charges a flat fee of **$4** plus **$2.50 per mile**. Write and solve an equation to find how many miles you can travel for **$24**.

Ans:

5. Solve for (x): 7x + 3 = 4x + 15

Ans:

1-2 Solving Equations with Variables on Both Sides

1. Solve for (x): 6x + 2 = 3x + 11

Ans:

2. Solve for (x): 5x - 4 = 5x + 6. What type of solution does this equation have: one, none, or infinitely many?

Ans:

3. Solve for (x): 8x - 9 = 3x + 6

Ans:

4. Explain what it means if both sides of an equation simplify to the same expression (for example, 2x + 5 = 2x + 5).

Ans:

5. Write an equation that has **no solution**, and explain why it has no solution.

Ans:

1-3 Literal Equations and Formulas

1. Solve the formula A = lw for w.

Ans:

2. Solve for (h) in the formula $V = \pi r^2 h$

Ans:

3. Rearrange the formula $C = 2\pi r$ to find r.

Ans:

4. The area of a triangle is given by $A = \frac{1}{2}bh$. Rearrange this formula to solve for (b), and then find (b) if A = 30 and h = 5.

Ans:

5. A car travels at a constant speed (s). The formula (d = st) relates distance, speed, and time. Solve for (t), and find (t) when (d = 240) km and (s = 80) km/h.

Ans:

1-4 Solving Inequalities in One Variable

1. Solve and graph on a number line: $3x - 4 < 11$

Ans:

2. Solve for (x): $5x + 7 \geq 22$

Ans:

3. A movie theater can seat **at most 250 people**. If there are already **180 people seated**, write and solve an inequality to find how many more people can enter.

Ans:

4. Solve and interpret the inequality: $-2x > 8$ [*Remember to reverse the inequality sign when dividing by a negative number.*]

Ans:

5. Decide if the inequality ($4x + 3 < 2x + 9$) is **true or false** for ($x = 2$).