



Practice Worksheet on Linear Equations

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Subject: Mathematics

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Long Answer Questions

1. What is a linear equation, and what methods are used to solve it?
2. What are equivalent equations, and how are they created?
3. Describe the step-by-step process for solving a linear equation.
4. What are the rules to keep in mind while solving linear equations?
5. Explain what it means when a linear equation has no solution.
6. Explain what it means when a linear equation has infinitely many solutions.
7. What is a coefficient in a linear equation?

8. What are constants in a linear equation?

Multiple Choice Questions

1. Solve for x: $2x + 2 = 6$

- a) $x = 1$
- b) $x = 2$
- c) $x = 3$
- d) $x = 4$

2. Solve for x: $x/2 = 5$

- a) $x = 5$
- b) $x = 10$
- c) $x = 15$
- d) $x = 20$

3. Solve for x: $3x - 1 = 5$

- a) $x = 1$
- b) $x = 2$
- c) $x = 3$
- d) $x = 4$

4. Solve for x: $x + 3 = 10$

- a) $x = 7$
- b) $x = 8$
- c) $x = 9$
- d) $x = 10$

5. Solve for x: $2x - 2 = 6$

- a) $x = 2$
- b) $x = 3$
- c) $x = 4$
- d) $x = 5$

6. Solve for x : $x - 5 = 0$

- a) $x = -5$
- b) $x = 5$
- c) $x = 10$
- d) $x = 15$

7. Solve for x : $x + 2 = 4$

- a) $x = -2$
- b) $x = 0$
- c) $x = 2$
- d) $x = 4$

8. Solve for x : $4x - 2 = 10$

- a) $x = 1$
- b) $x = 2$
- c) $x = 3$
- d) $x = 4$

Answer Key

Long Answer Questions - Expected Responses

1. What is a linear equation, and what methods are used to solve it?

Expected Answer: A linear equation has only one variable raised to the power of 1. It can be solved using various methods including addition, subtraction, multiplication, and division.

2. What are equivalent equations, and how are they created?

Expected Answer: Equivalent equations are equations that have the same solutions. If one changes the equation by adding or subtracting the same number to both sides, or by multiplying or dividing both sides by the same non-zero number, then the equation remains equivalent.

3. Describe the step-by-step process for solving a linear equation.

Expected Answer: To solve a linear equation, simplify it by expanding brackets and collecting like terms. Then, isolate the variable term by performing inverse operations, and finally, solve for the variable.

4. What are the rules to keep in mind while solving linear equations?

Expected Answer: When solving equations, you can add, subtract, multiply, or divide both sides by the same value, maintaining equality. You must ensure that you're not dividing by zero.

5. Explain what it means when a linear equation has no solution.

Expected Answer: An equation with no solution means no value of the variable will make the equation true. This often results in a contradiction, such as $2 = 0$.

6. Explain what it means when a linear equation has infinitely many solutions.

Expected Answer: An equation with infinitely many solutions means that any value of the variable will satisfy the equation. This typically happens when both sides of the equation simplify to be identical.

7. What is a coefficient in a linear equation?

Expected Answer: The coefficient of a variable is the number that multiplies the variable. For example, in $3x$, the coefficient is 3.

8. What are constants in a linear equation?

Expected Answer: Constants are numerical terms without variables. In the equation $2x + 5 = 9$, 5 and 9 are the constants.

Multiple Choice Questions - Correct Answers

1. Solve for x: $2x + 2 = 6$

Correct Answer: $x = 2$

2. Solve for x: $x/2 = 5$

Correct Answer: $x = 10$

3. Solve for x: $3x - 1 = 5$

Correct Answer: $x = 2$

4. Solve for x: $x + 3 = 10$

Correct Answer: $x = 7$

5. Solve for x: $2x - 2 = 6$

Correct Answer: $x = 4$

6. Solve for x: $x - 5 = 0$

Correct Answer: $x = 5$

7. Solve for x: $x + 2 = 4$

Correct Answer: $x = 2$

8. Solve for x: $4x - 2 = 10$

Correct Answer: $x = 3$