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Algebraic Linear Equations**Solve each equation. Show your work.**

1. $2x - 0.2(4 - x) = 2.8$

4. $3(x - 1) - 8 = 4(1 + x) + 5$

2. $3(x + 3) - \frac{2x + 1}{2} = 0.5$

5. $\frac{4x - 2}{8} + \frac{3 + x}{4} = \frac{1}{2}$

3. $-\frac{x + 2}{3} - \frac{4 - 2x}{2} = \frac{1}{6}$

Express each decimal as a fraction. Show your work.

6. $0.0\bar{6}$

7. $0.58\bar{3}$



Algebraic Linear Equations

Identify whether each equation has one solution, no solution, or an infinite number of solutions. Show your work.

8. $2x - \frac{1}{4} = -\frac{1}{8}(16x - 2)$

9. $0.5(6x - 3) = \frac{1}{2}(6 + 6x)$

10. $\frac{1}{5}(x - 5) = \frac{1}{5}x - 1$

Solve for y in terms of x. Find y when x = 6.

11. $0.75y = \frac{1}{4}(x - 3)$

12. $\frac{2}{3}x - 1 = 2(y + 7)$



Algebraic Linear Equations

13. What should the value of p be for the equation below to have no solutions?

$$p \cdot x = 5 - 10x$$

A) -10

B) $-\frac{1}{10}$

C) $\frac{1}{10}$

D) 10

14. How many solutions does this equation have?

$$6a - 2 = 2(1 + 3a)$$

A) none

B) exactly one

C) exactly two

D) infinitely many

15. Solve for p .

$$\frac{1}{3}(4p - 9) = 8p + 12$$

A) $-\frac{15}{4}$

B) $-\frac{9}{4}$

C) $\frac{9}{4}$

D) $\frac{15}{4}$

16. Solve for x .

$$2.4x + 10 = 9x + 8 - 6.2x$$

- A) -5
- B) $-\frac{1}{2}$
- C) $\frac{1}{2}$
- D) 5

17. Which step is the first *incorrect* step in the solution shown below?

Solve: $6(x + 1) = -5x + 14$

Step 1: $6x + 6 = -5x + 14$

Step 2: $11x + 6 = 14$

Step 3: $11x = 8$

Step 4: $x = -3$

- A) Step 1
- B) Step 2
- C) Step 3
- D) Step 4

18. Which step is the first *incorrect* step in the solution shown below?

Solve: $5(x + 2) = 6x + 12$

Step 1: $5x + 2 = 6x + 12$

Step 2: $-x + 2 = 12$

Step 3: $-x = 10$

Step 4: $x = -10$

- A) Step 1
- B) Step 2
- C) Step 3
- D) Step 4



Algebraic Linear Equations

19. Which step is the first *incorrect* step in the solution shown below?

Solve: $3(x + 2) = 6x + 12$

Step 1: $3x + 6 = 6x + 12$

Step 2: $-3x + 6 = 12$

Step 3: $-3x = 18$

Step 4: $x = -6$

- A) Step 1
- B) Step 2
- C) Step 3
- D) Step 4

20. Solve for x .

$$\frac{3}{2}x - 11 + x = 4x - 2$$

- A) -6
- B) $-\frac{9}{2}$
- C) 6
- D) 18