Mathematics · Algebra · Worked solutions

Solving linear equations

1. Solve x + 13 = 28 and show your operation.

Subtract 13 from both sides: x = 15.

2. Solve 7x = 63 and show your operation.

Divide both sides by 7: x = 9.

3. Solve x/5 = 8 and show your operation.

Multiply both sides by 5: x = 40.

4. Solve 6x − 11 = 43. Show your working.

Add 11 to get 6x = 54. Divide by 6: x = 9.

5. Solve 3(x + 4) = 30. Show your working.

Divide by 3 to get x + 4 = 10. Subtract 4: x = 6.

Worked solutions · Questions 6–10

6. Solve 8x + 4 = 5x + 25. Show your working.

Subtract 5x and 4 to get 3x = 21. Divide by 3: x = 7.

7. A shuttle charges ₦500 plus ₦120 per kilometre. A trip costs ₦2,660. Set up an equation and find its distance.

500 + 120d = 2660. Therefore 120d = 2160 and d = 18 km.

8. Solve (x − 4)/3 + (x + 2)/2 = 12. Show your working.

Multiply by 6: 2(x − 4) + 3(x + 2) = 72. Then 5x = 74, so x = 74/5.

9. A rectangle is 3 m longer than twice its width. Its perimeter is 54 m. Find the width using an equation.

Let width be w. Then 2(w + 2w + 3) = 54. Thus 6w = 48 and w = 8 m.

10. Solve 4(2x − 5) − 3(x + 1) = 2(x − 7) + 9. Show your working.

Expand: 5x − 23 = 2x − 5. Hence 3x = 18, so x = 6.