Solving linear equations

Name _____ Date _____

Key ideas

An equation states that two expressions have the same value. Apply the same operation to both sides to preserve that equality. Expand brackets when needed, gather the variable terms, then isolate the variable. Substitute your answer into the original equation to check it.

Worked examples

Solve 4x + 3 = 31.

Subtract 3 from both sides to obtain 4x = 28. Divide both sides by 4 to get x = 7. Check: 4 × 7 + 3 = 31.

Solve 3(x − 2) = 2x + 5.

Expand to give 3x − 6 = 2x + 5. Subtract 2x and add 6 to get x = 11.

Practice questions

Show your reasoning. Each question is worth 2 marks.

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

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

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

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

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

Revision workbook · Questions 6–10

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

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

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

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

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