Equations: Unknowns on Both Sides

Practice worksheet · KS3

Name: _____ Date: _____

1. Solve 3x + 2 = x + 8

2. Solve 5x + 1 = 2x + 13

3. Solve 4x + 3 = x + 18

4. Solve 6x + 2 = 2x + 22

5. Solve 7x + 1 = 3x + 25

6. Solve 7x - 4 = 3x + 16

7. Solve 5x - 3 = 2x + 9

8. Solve 6x - 7 = 2x + 13

9. Solve x + 12 = 4x

10. Solve 3(x + 2) = x + 10

11. Solve 4(x + 1) = x + 13

12. Solve 3(x - 2) = x + 8

13. Solve 5(x + 1) = 2x + 20

14. ★ stretch

Ali solves 6x + 1 = 2x + 13 and writes 8x + 1 = 13 as the next line. What has gone wrong, and what is x?

15. ★ stretch

Solve 4(x - 1) = 2(x + 3)

Answers

Equations with unknowns on both sides and brackets

1. take x off both sides: 2x + 2 = 8; so 2x = 6 = x = 3

2. take 2x off both sides: 3x + 1 = 13; so 3x = 12 = x = 4

3. take x off both sides: 3x + 3 = 18; so 3x = 15 = x = 5

4. take 2x off both sides: 4x + 2 = 22; so 4x = 20 = x = 5

5. take 3x off both sides: 4x + 1 = 25; so 4x = 24 = x = 6

6. take 3x off both sides: 4x - 4 = 16; so 4x = 20 = x = 5

7. take 2x off both sides: 3x - 3 = 9; so 3x = 12 = x = 4

8. take 2x off both sides: 4x - 7 = 13; so 4x = 20 = x = 5

9. take x off both sides: 12 = 3x = x = 4

10. multiply out: 3x + 6 = x + 10; take x off both sides: 2x + 6 = 10; so 2x = 4 = x = 2

11. multiply out: 4x + 4 = x + 13; take x off both sides: 3x + 4 = 13; so 3x = 9 = x = 3

12. multiply out: 3x - 6 = x + 8; take x off both sides: 2x - 6 = 8; so 2x = 14 = x = 7

13. multiply out: 5x + 5 = 2x + 20; take 2x off both sides: 3x + 5 = 20; so 3x = 15 = x = 5

14. take 2x off both sides: 4x + 1 = 13, so 4x = 12 = 2x was moved, not taken off; x = 3

15. multiply out: 4x - 4 = 2x + 6; take 2x off both sides: 2x - 4 = 6; so 2x = 10 = x = 5