

Grade 8 Word Problems: Writing and Solving Linear Equations

Expressions & Equations • Grade 8 • Word Problems • Set A • CCSS 8.EE.7

Name: _____

Date: _____

Solve each equation and answer the question. Show the steps that isolate the variable.

1. A gym charges a \$25 sign-up fee plus \$15 per month. The equation $15m + 25 = 145$ gives the number of months m for a \$145 total. Solve for m .

2. A taxi charges \$3.00 plus \$2.50 per mile. The equation $2.5x + 3 = 23$ models a \$23.00 fare. How many miles x was the ride?

3. Two consecutive integers add to 47. The equation $x + (x + 1) = 47$ models this. What is the smaller integer x ?

4. A number is decreased by 3, then the result is multiplied by 4 to give 20. Solve $4(x - 3) = 20$.

5. Two phone plans cost the same at x minutes. Solve $5x + 8 = 3x + 20$ to find x .

6. A rectangle is 3 cm longer than it is wide, and its perimeter is 26 cm. Solve $2(w + 3) + 2w = 26$ for the width w .

7. Solve $2(x + 4) = 3x - 1$ to find the number x that makes both expressions equal.

8. A number tripled and then decreased by 7 equals 26. Solve $3x - 7 = 26$.

9. Two trucks carry equal loads. Solve $6x - 4 = 2x + 16$ to find the load x in tons.

10. Plan A costs \$30 plus \$0.10 per minute; Plan B costs a flat \$50. Solve $0.1x + 30 = 50$ for the number of minutes x where the plans cost the same.

11. The temperature falls at a steady rate. Solve $-3x + 12 = 3$ to find the number of hours x .

12. Solve $7 - 2x = -5$ for x .

13. Two angles measuring x and $2x$ degrees are complementary, so they add to 90. Solve $x + 2x = 90$.

14. A tank holds 6 liters and is filled at half a liter per minute to reach 14 liters. Solve $0.5x + 6 = 14$ for the minutes x .

Answer Key

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1. $m = 8$

6. $w = 5$

11. $x = 3$

2. $x = 8$

7. $x = 9$

12. $x = 6$

3. $x = 23$

8. $x = 11$

13. $x = 30$

4. $x = 8$

9. $x = 5$

14. $x = 16$

5. $x = 6$

10. $x = 200$