

Grade 8 Word Problems: Writing and Solving Linear Equations

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

Name: _____

Date: _____

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

1. Solve $5(x + 3) = 6x - 6$ to find the number x that makes both expressions equal.

2. A number is decreased by 2, then the result is multiplied by 5 to give 5. Solve $5(x - 2) = 5$.

3. Two consecutive integers add to 107. The equation $x + (x + 1) = 107$ models this. What is the smaller integer x ?

4. A tank holds 4 liters and is filled at a quarter liter per minute to reach 7 liters. Solve $0.25x + 4 = 7$ for the minutes x .

5. Plan A costs \$35 plus \$0.25 per minute; Plan B costs a flat \$74. Solve $0.25x + 35 = 74$ for the number of minutes x where the plans cost the same.

6. A gym charges a \$30 sign-up fee plus \$20 per month. The equation $20m + 30 = 210$ gives the number of months m for a \$210 total. Solve for m .

7. Two angles measuring x and $4x$ degrees are complementary, so they add to 90. Solve $x + 4x = 90$.

8. The temperature falls at a steady rate. Solve $-4x + 15 = -5$ to find the number of hours x .

9. A number tripled and then decreased by 5 equals 37. Solve $3x - 5 = 37$.

10. A rectangle is 6 cm longer than it is wide, and its perimeter is 40 cm. Solve $2(w + 6) + 2w = 40$ for the width w .

11. Solve $8 - 3x = -16$ for x .

12. Solve $19 - 2x = 13$ for x .

13. A taxi charges \$5.00 plus \$2.00 per mile. The equation $2x + 5 = 23$ models a \$23.00 fare. How many miles x was the ride?

14. Two phone plans cost the same at x minutes. Solve $7x + 2 = 4x + 32$ to find x .

Answer Key

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1. $x = 9$

2. $x = 3$

3. $x = 53$

4. $x = 12$

5. $x = 156$

6. $m = 9$

7. $x = 18$

8. $x = 5$

9. $x = 14$

10. $w = 7$

11. $x = 8$

12. $x = 3$

13. $x = 9$

14. $x = 10$