Grade 8 Word Problems: Writing and Solving Linear Equations

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

Name: _____ Date: _____

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

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

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2. A gym charges a $26 sign-up fee plus $24 per month. The equation 24m + 26 = 266 gives the number of months m for a $266 total. Solve for m.

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3. A rectangle is 3 cm longer than it is wide, and its perimeter is 22 cm. Solve 2(w + 3) + 2w = 22 for the width w.

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4. A taxi charges $3.00 plus $3.00 per mile. The equation 3x + 3 = 36 models a $36.00 fare. How many miles x was the ride?

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5. Two phone plans cost the same at x minutes. Solve 8x + 8 = 5x + 38 to find x.

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6. Solve 5(x + 9) = 8x - 30 to find the number x that makes both expressions equal.

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7. The temperature falls at a steady rate. Solve -4x + 17 = -3 to find the number of hours x.

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8. Two consecutive integers add to 27. The equation x + (x + 1) = 27 models this. What is the smaller integer x?

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9. A tank holds 2 liters and is filled at half a liter per minute to reach 7 liters. Solve 0.5x + 2 = 7 for the minutes x.

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10. A number tripled and then decreased by 2 equals 16. Solve 3x - 2 = 16.

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11. Solve 6 - 4x = -10 for x.

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12. Solve 13 - 3x = 7 for x.

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13. Plan A costs $27 plus $0.20 per minute; Plan B costs a flat $47. Solve 0.2x + 27 = 47 for the number of minutes x where the plans cost the same.

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14. A number is decreased by 5, then the result is multiplied by 3 to give 18. Solve 3(x - 5) = 18.

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Answer Key

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1. x = 18
2. m = 10
3. w = 4
4. x = 11
5. x = 10
6. x = 5
7. x = 5
8. x = 13
9. x = 10
10. x = 6
11. x = 4
12. x = 2
13. x = 100
14. x = 11