

Grade 8 - Solving Linear Equations in One Variable - Worksheet

Common Core 8.EE.C.7a, 8.EE.C.7b · maths-pdf.fr/en/

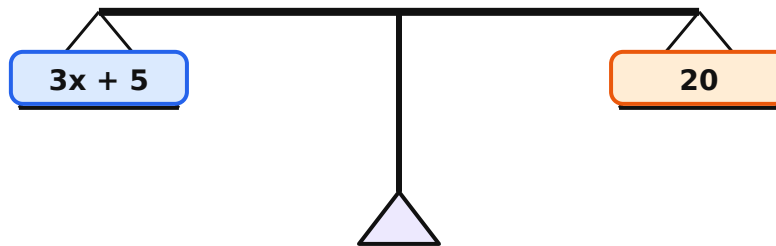
Name: _____ Class: _____ Date: ____/____/____

These 20 problems practice solving linear equations with variables on both sides and equations with no or infinitely many solutions (Common Core 8.EE.C.7a and 8.EE.C.7b). Each problem has its own space for work, so print the page and write directly on it.

The problems start with direct skill checks and grow harder as you go. Later items cover equations with fractions, special cases and word problems. Use the answer key afterwards to check every step.

Grade 8 · Common Core State Standards: **8.EE.C.7a, 8.EE.C.7b**

Exercise 1 - Two-step equation



Solve for x.

Solve $3x + 5 = 20$.

Exercise 2 - Fractional coefficient

Solve $\frac{2}{3}x - 4 = 8$.

Exercise 3 - Combine like terms

Solve $2x + 3x - 4 = 21$.

Exercise 4 - Variables on both sides

Solve $5x - 7 = 2x + 11$.

Exercise 5 - Distribute

Solve $6(x+1) = 4x+20$.

Exercise 6 - Distribute on both sides

Solve $3(2x+1) = 5(x+2)$.

Exercise 7 - No solution

Solve $2(3x+1) = 6x+12$. How many solutions does it have?

Exercise 8 - Infinitely many

Solve $3(x+4) = 3x+12$. How many solutions does it have?

Exercise 9 - Fractions on both sides

Solve $\frac{2}{3}x - 1 = \frac{1}{6}x + 4$.

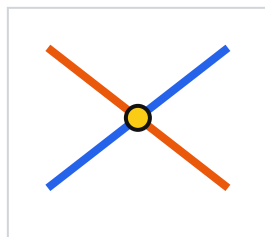
Exercise 10 - Decimals

Solve $0.5x + 2.5 = 0.25x + 4$.

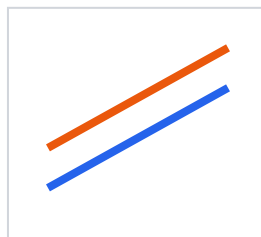
Exercise 11 - Negative sign distribution

Solve $7 - 2(x-1) = 3x - 6$.

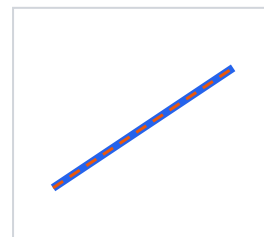
Exercise 12 - Classify



One solution



No solution



Infinite

Crossing once, parallel, or the same line.

Tell whether each equation has one solution, no solution, or infinitely many solutions: (a) $5x+1=5x-3$ (b) $4x+2=2(2x+1)$ (c) $3x+1=2x+6$.

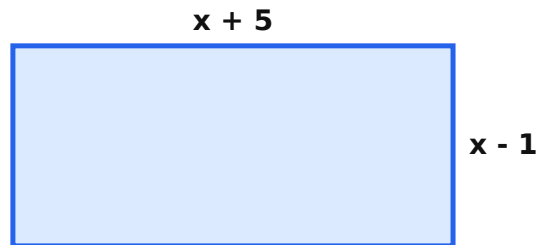
Exercise 13 - Find the constant

For which value of c does $4x+7=4x+c$ have infinitely many solutions? For which values does it have no solution?

Exercise 14 - Number puzzle

Sofia thinks of a number. Three times the number decreased by 4 equals the number increased by 10. Find the number.

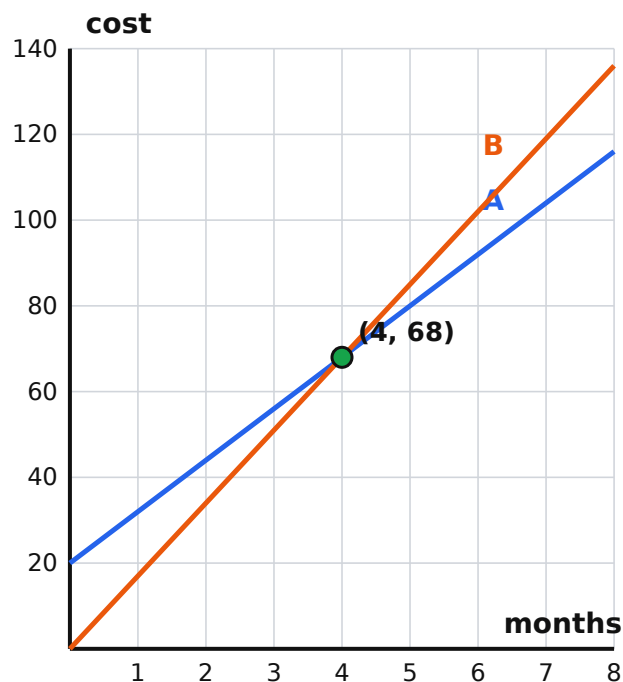
Exercise 15 - Rectangle perimeter



A garden bed.

A rectangular garden bed has length $x+5$ feet and width $x-1$ feet. Its perimeter is 40 feet. Find x and the dimensions.

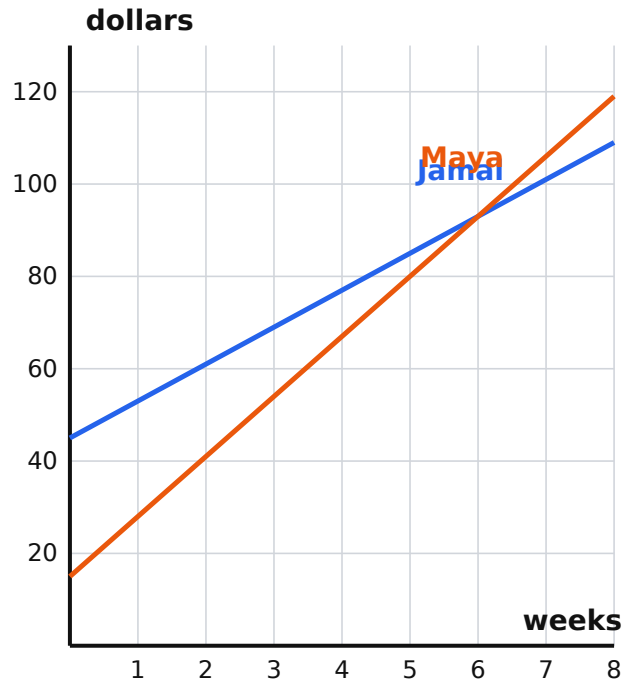
Exercise 16 - Gym plans



Total cost after x months.

Gym A charges \\$20 to join plus \\$12 a month. Gym B charges \\$17 a month with no joining fee. After how many months do both cost the same?

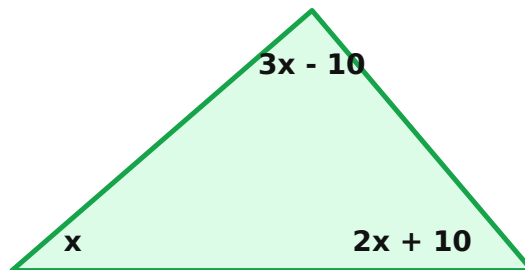
Exercise 17 - Saving up



Savings in dollars.

Jamal has \\$45 and saves \\$8 each week. Maya has \\$15 and saves \\$13 each week. When do they have the same amount, and how much is it?

Exercise 18 - Triangle angles



Angles of a triangle add to 180 degrees.

The angles of a triangle measure x , $2x+10$ and $3x-10$ degrees. Find each angle.

Exercise 19 - Phone plan

Plan A costs \\$25 a month plus \\$0.10 per minute. Plan B costs \\$40 a month with unlimited minutes. For how many minutes do both plans cost the same?

Exercise 20 - Explain no solution

Liam solved $2x+5=2x+9$ and got $5=9$. He says he made an error. Is he right? Explain.