

Grade 8 · Solving Linear Equations · Test

Common Core 8.EE.C.7a, 8.EE.C.7b · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

This test has eight questions worth 20 points in total and should take about 45 minutes. Show every step of your work. Calculators are not needed. The questions cover multi-step equations, fractions and decimals, variables on both sides, and equations with no solution or infinitely many solutions.

Test information

- **Grade:** Grade 8
- **Chapter:** Solving Linear Equations
- **Common Core:** 8.EE.C.7a, 8.EE.C.7b
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 3 pts; Question 3: 3 pts; Question 4: 3 pts; Question 5: 2 pts; Question 6: 2 pts; Question 7: 3 pts; Question 8: 2 pts)

Question 1: Multi-step equations (2 points)

Solve each equation.

- a. $5x - 7 = 18$ (1 point)
- b. $3(x - 4) = -21$ (1 point)

Question 2: Variables on both sides (3 points)

Solve each equation.

- a. $6x + 5 = 2x + 25$ (1 point)
- b. $4(x - 2) = x + 10$ (1 point)
- c. $3(2x + 1) - 4x = 19$ (1 point)

Question 3: Fractions and decimals (3 points)

Solve each equation.

- a. $\frac{2}{5}x + 3 = 11$ (1 point)
- b. $1.2x - 0.5 = 0.7x + 2$ (1 point)
- c. $\frac{1}{3}(x + 6) = \frac{1}{2}x - 1$ (1 point)

Question 4: Number of solutions (3 points)

For each equation, state whether it has one solution, no solution or infinitely many solutions. Solve if it has one solution.

- a. $5x+2(x-1)=7x-2$ (1 point)
- b. $3(x+4)=3x+9$ (1 point)
- c. $6x-4=2(x+2)$ (1 point)

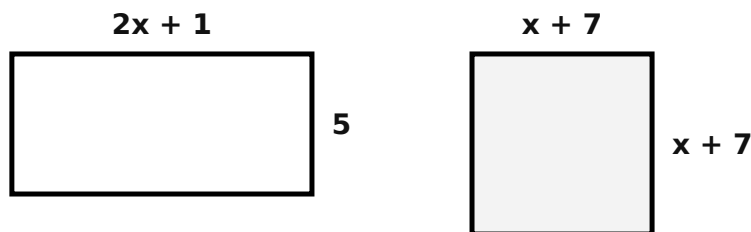
Question 5: Choose the constant (2 points)

Consider the equation $3(x+2)=3x+k$.

- a. Find the value of k that gives infinitely many solutions. (1 point)
- b. Give one value of k that gives no solution. (1 point)

Question 6: Equal perimeters (2 points)

The rectangle and the square shown have the same perimeter. Write an equation and tell how many values of x make this true. Explain.



A rectangle and a square.

Question 7: Savings plans (3 points)

The table shows two savings plans.

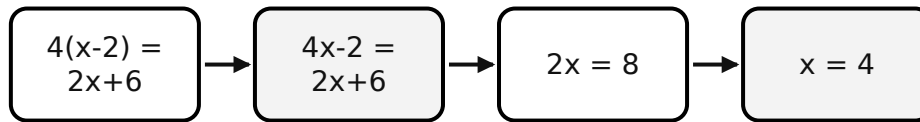
- a. Write an expression for each person's total after w weeks. (1 point)
- b. After how many weeks do they have the same total? (1 point)
- c. How much do they each have then? (1 point)

	Starting amount	Saved each week
Priya	\$64	\$8
Sam	\$28	\$14

Two savings plans.

Question 8: Find the error (2 points)

Noah's work is shown. Find his mistake and give the correct solution.



Noah's solution.