

Algebra 1 · Linear Equations and Literal Equations · Test

Common Core A-REI.A.1, A-REI.B.3, A-CED.A.1, A-CED.A.4 · mathovore.fr

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

This test has 9 questions worth 20 points and takes about 45 minutes. It covers solving multi-step linear equations, justifying steps, recognizing special cases, using graphs, rearranging formulas and writing equations from word problems. Show all work. Calculators are allowed.

Test information

- **Grade:** Algebra 1
- **Chapter:** Linear Equations and Literal Equations
- **Common Core:** A-REI.A.1, A-REI.B.3, A-CED.A.1, A-CED.A.4
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 2 pts; Question 3: 2 pts; Question 4: 3 pts; Question 5: 2 pts; Question 6: 2 pts; Question 7: 2 pts; Question 8: 3 pts; Question 9: 2 pts)

Question 1: Variables on both sides (2 points)

Solve $5x - 8 = 3x + 12$.

Question 2: Distribute and combine (2 points)

Solve $3(2x - 1) - 4 = 5x + 2$.

Question 3: Fractions on both sides (2 points)

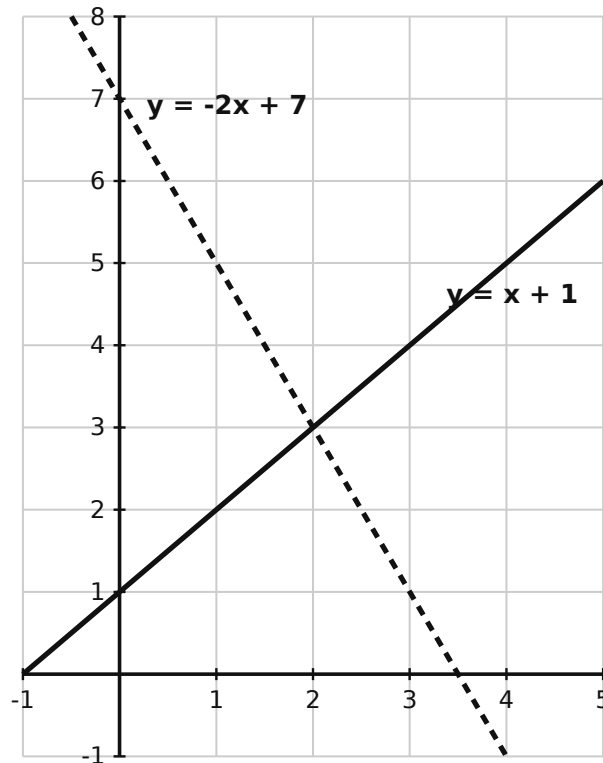
Solve $\frac{3}{4}x + 2 = \frac{1}{2}x - 1$.

Question 4: Justify each step (3 points)

Solve $4(x - 1) = 2x + 10$. Write the property that justifies each step.

Question 5: Solve using a graph (2 points)

The graph shows $y = x + 1$ and $y = -2x + 7$.



Graphs of $y = x + 1$ and $y = -2x + 7$.

- State the solution of $x + 1 = -2x + 7$ from the graph. (1 point)
- Verify the solution algebraically. (1 point)

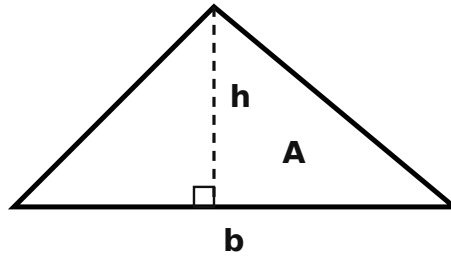
Question 6: How many solutions? (2 points)

Solve each equation and describe the solution set.

- $6x - 4 = 2(3x - 2)$
- $5x + 1 = 5x - 3$

Question 7: Rearranging formulas (2 points)

Solve each formula for the variable shown.



A triangle with base b , height h and area A .

- $A = \frac{1}{2}bh$ for b
- $3x - 2y = 12$ for y

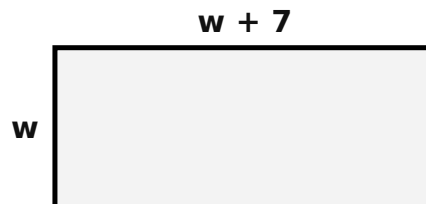
Question 8: Text messages (3 points)

Sofia's phone plan costs \$20 per month plus \$0.05 per text message. Her bill was \$27.50.

- Write an equation for the number of texts t . (1 point)
- Solve the equation. (1 point)
- Explain what the solution means. (1 point)

Question 9: Garden perimeter (2 points)

A rectangular garden has width w feet and length $w+7$ feet. Its perimeter is 62 feet.



The garden.

- Write an equation. (1 point)
- Find the width and length. (1 point)