

Grade 7 · Two-Step Equations · Test

Common Core 7.EE.B.3, 7.EE.B.4a · mathovore.fr

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

This test has nine questions worth 20 points in total and should take about 45 minutes. Show every step. Calculators are not needed. Questions cover equations of the forms $px + q = r$ and $p(x + q) = r$ with whole numbers, decimals, fractions and negative numbers.

Test information

- **Grade:** Grade 7
- **Chapter:** Two-Step Equations
- **Common Core:** 7.EE.B.3, 7.EE.B.4a
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 2 pts; Question 3: 2 pts; Question 4: 2 pts; Question 5: 2 pts; Question 6: 2 pts; Question 7: 2 pts; Question 8: 3 pts; Question 9: 3 pts)

Question 1: Add, then multiply (2 points)

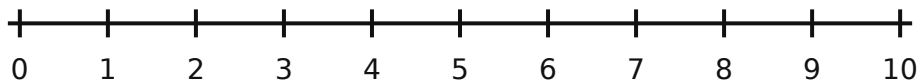
Solve $6x + 9 = 45$.

Question 2: Fraction of a variable (2 points)

Solve $\frac{x}{3} - 4 = 5$.

Question 3: Negative coefficient (2 points)

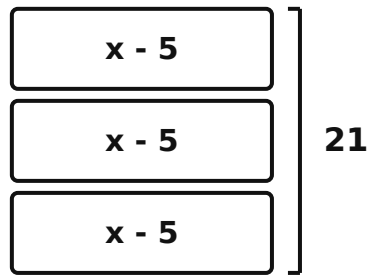
Solve $-2x + 7 = -5$. Graph the solution on the number line.



Use this number line for the graph.

Question 4: Parentheses (2 points)

Solve $3(x - 5) = 21$.



Three equal groups of x minus 5.

Question 5: Decimal coefficients (2 points)

Solve $1.5x + 2.25 = 9.75$.

Question 6: Fraction coefficient (2 points)

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

Question 7: Find the error (2 points)

Liam solved $4x + 6 = 30$ and wrote: $4x = 30 + 6 = 36$, so $x = 9$. Explain his mistake and find the correct solution.

Question 8: School store receipt (3 points)

Noah buys 4 notebooks that cost n dollars each and one pen that costs \$3.50. The total is \$17.50.

4 notebooks (n each)	?
1 pen	\$3.50
Total	\$17.50

Noah's purchase.

- Write an equation. (1 point)
- Solve it to find the price of one notebook. (1 point)
- Check the answer. (1 point)

Question 9: Two ways to find a number (3 points)

Mei picks a number, adds 7, and multiplies the result by 4. She gets 52.

- a. Write an equation for the situation. (1 point)
- b. Solve the equation algebraically. (1 point)
- c. Solve the problem with arithmetic and explain how it matches the algebra. (1 point)