

Algebra 1 - Solving Linear Equations in One Variable - Test Answer Key

Common Core A-REI.A.1, A-REI.B.3, A-CED.A.1 · maths-pdf.fr/en/

These are worked solutions for the linear equations test with a scoring guide for every question. Award points for correct method as well as for the final answer. The test totals 20 points, so add the question scores to find the final grade.

Algebra 1 · Common Core State Standards: **A-REI.A.1, A-REI.B.3, A-CED.A.1**

Question 1 - One-step and two-step [2 pts]

a) Add 9: $x = 23$.

b) Subtract 8: $5x = -25$. Divide by 5: $x = -5$.

Scoring: 1 point for each correct solution.

Question 2 - Both sides [2 pts]

Subtract $3x$: $4x - 4 = 20$. Add 4: $4x = 24$. Divide by 4.

$$x = 6$$

Scoring: 1 point for collecting variable terms and constants correctly; 1 point for the solution.

Question 3 - Distribute [2 pts]

Distribute: $8x - 12 = 3x + 13$. Subtract $3x$: $5x - 12 = 13$. Add 12: $5x = 25$.

$$x = 5$$

Scoring: 1 point for distributing correctly; 1 point for the solution.

Question 4 - Fraction coefficient [2 pts]

Subtract 2: $\frac{3}{4}x = 9$. Multiply by $\frac{4}{3}$: $x = 9 \cdot \frac{4}{3} = 12$.

$$x = 12$$

Scoring: 1 point for isolating the term with x ; 1 point for the solution.

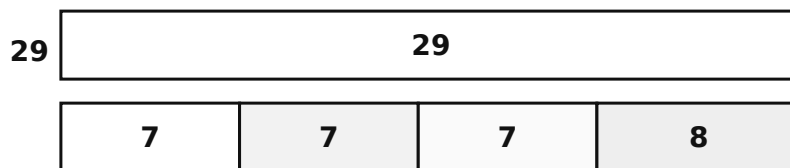
Question 5 - Types of solutions [2 pts]

a) Distribute: $5x - 5 = 5x - 5$, always true: **infinitely many solutions**.

b) Subtract $2x$: $3 = -4$, always false: **no solution**.

Scoring: 1 point for each correct classification with support.

Question 6 - Tape diagram [2 pts]



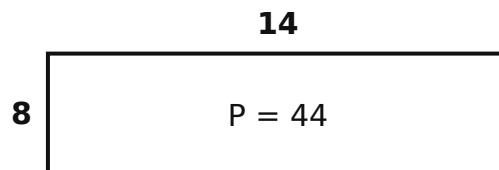
Each part x equals 7.

Equation: $3x + 8 = 29$. Subtract 8: $3x = 21$. Divide by 3.

$$x = 7$$

Scoring: 1 point for the equation; 1 point for the solution.

Question 7 - Rectangle perimeter [3 pts]



Width 8 inches, length 14 inches.

a) $2x + 2(x + 6) = 44$.

b) $4x + 12 = 44$, so $4x = 32$ and $x = 8$.

c) Width 8 in, length $8 + 6 = 14$ in. Check: $2(8) + 2(14) = 44$.

Width 8 inches, length 14 inches

Scoring: 1 point per part.

Question 8 - Equal savings [3 pts]

a) $120 + 15w = 45 + 20w$.

b) Subtract $15w$: $120 = 45 + 5w$. Subtract 45: $75 = 5w$, so $w = 15$.

c) $120 + 15(15) = 345$ and $45 + 20(15) = 345$.

15 weeks; \$345 each

Scoring: 1 point per part.

Question 9 - Find the error [2 pts]
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The student multiplied only the first term. Correct distribution: $3x + 12 = 21$.

Subtract 12: $3x = 9$. Divide by 3.

$x = 3$ (the 4 must also be multiplied by 3)

Scoring: 1 point for identifying the error; 1 point for the correct solution.

Total
20 points