

Grade 7 - Solving Two-Step Equations - Test Answer Key

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Use this answer key and scoring guide to grade the two-step equations test. Each solution shows the full work, and the scoring note explains how the points are awarded. Give partial credit for correct steps even when the final answer is wrong.

Grade 7 · Common Core State Standards: **7.EE.B.4a**

Question 1 - Two-step [2 pts]

Add 9 to both sides: $6x = 42$

Divide both sides by 6: $x = 7$

Check: $6(7) - 9 = 33$

$$x = 7$$

Scoring: 1 point for the first correct inverse step; 1 point for the solution and check.

Question 2 - Parentheses [2 pts]

Divide both sides by -4 : $x + 5 = 7$

Subtract 5 from both sides: $x = 2$

Check: $-4(2 + 5) = -28$

$$x = 2$$

Scoring: 1 point for the first correct inverse step; 1 point for the solution and check.

Question 3 - Fractions [2 pts]

Subtract $\frac{1}{2}$ from both sides: $\frac{3}{4}x = 5$

Divide both sides by $\frac{3}{4}$: $x = \frac{20}{3}$

Check: $\frac{3}{4}(\frac{20}{3}) + \frac{1}{2} = \frac{11}{2}$

$x = \frac{20}{3}$

Scoring: 1 point for the first correct inverse step; 1 point for the solution and check.

Question 4 - Decimals [2 pts]

Add 2.4 to both sides: $1.5x = 9$

Divide both sides by 1.5: $x = 6$

Check: $1.5(6) - 2.4 = 6.6$

$x = 6$

Scoring: 1 point for the first correct inverse step; 1 point for the solution and check.

Question 5 - Write and solve [2 pts]

$2t + 12 = 46$, so $2t = 34$ and $t = 17$.

\$17 per ticket

\$34 left	\$34	
Split	\$17	\$17

After the fee, two tickets share \$34.

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

Question 6 - Two methods [2 pts]

(a) $26 - 5 = 21$, $21 \div 3 = 7$.

(b) $3n + 5 = 26$, $3n = 21$, $n = 7$.

7

Scoring: 1 point for each method.

Question 7 - Find the error [2 pts]

Liam did not divide the 12 by 3.

$x-2=4$, so $x=6$. Check: $3(6-2)=12$

$x=6$

Scoring: 1 point for the explanation; 1 point for the correct solution.

Question 8 - Kayak rental [3 pts]

a. Per hour: $(55-25)\div 2=15$. Starting fee \$25.

b. $C=15h+25$

c. $15h+25=205$, $15h=180$, $h=12$ hours.

Hours h	Cost
6	\$115
8	\$145

More rental hours.

Scoring: 1 point for each part.

Question 9 - Triangle [3 pts]

a. $x+(x+4)+10=38$, or $2x+14=38$.

b. $2x=24$, $x=12$.

c. The sides are 12, 16, and 10, so the longest is 16 inches.

Scoring: 1 point for each part.

Total**20 points**