

Grade 7 - Solving Two-Step Equations - Answer Key

Common Core 7.EE.B.4a · maths-pdf.fr/en/

Use this answer key to check your work on the two-step equations worksheet. Every solution shows the steps, and the final answer appears in bold. If your answer is different, compare each step and look for the first place where the work changes.

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

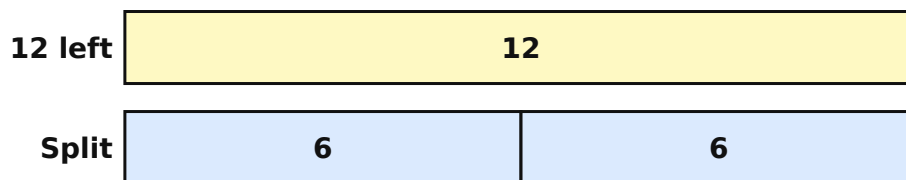
Exercise 1 - Add then divide

Subtract 5 from both sides: $2x = 12$

Divide both sides by 2: $x = 6$

Check: $2(6) + 5 = 17$

$$x = 6$$



$$x = 6.$$

Exercise 2 - Subtract then divide

Add 4 to both sides: $3x = 18$

Divide both sides by 3: $x = 6$

Check: $3(6) - 4 = 14$

$$x = 6$$

Exercise 3 - Divide by a number

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

Multiply both sides by 4: $x = 20$.

Check: $\frac{20}{4} + 3 = 8$

$$x = 20$$

Exercise 4 - Negative coefficient

Subtract 2 from both sides: $-5x = -20$

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

Check: $-5(4) + 2 = -18$

$$x = 4$$

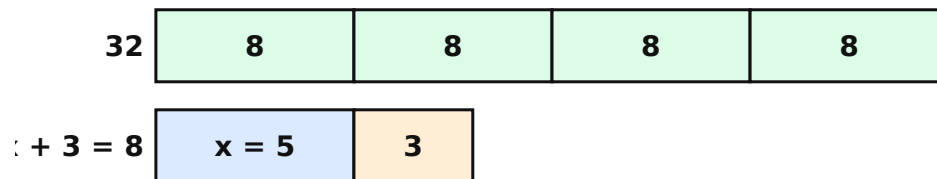
Exercise 5 - Distribute first or divide first

Divide both sides by 4: $x + 3 = 8$

Subtract 3 from both sides: $x = 5$

Check: $4(5 + 3) = 32$

$$x = 5$$



Each group is 8.

Exercise 6 - Negative solution

Divide both sides by 3: $x - 2 = -5$

Add 2 to both sides: $x = -3$

Check: $3(-3 - 2) = -15$

$$x = -3$$

Exercise 7 - Decimals

Subtract 1.2 from both sides: $0.5x = 3.5$

Divide both sides by 0.5: $x = 7$

Check: $0.5(7) + 1.2 = 4.7$

$$x = 7$$

Step	Equation
Start	$0.5x + 1.2 = 4.7$
Subtract 1.2	$0.5x = 3.5$
Divide by 0.5	$x = 7$

Solution steps.

Exercise 8 - Fractions

Add $\frac{3}{4}$ to both sides: $\frac{1}{2}x = 2$

Divide both sides by $\frac{1}{2}$: $x = 4$

Check: $\frac{1}{2}(4) - \frac{3}{4} = \frac{5}{4}$

$$x = 4$$

Exercise 9 - Decimals in parentheses

Divide both sides by -2 : $x + 1.5 = 4.5$

Subtract 1.5 from both sides: $x = 3$

Check: $-2(3 + 1.5) = -9$

$$x = 3$$

Exercise 10 - Negative divisor

Subtract 4: $\frac{x}{-3} = 6$.

Multiply both sides by -3 : $x = -18$.

Check: $\frac{-18}{3} + 4 = 6 + 4 = 10$

$x = -18$

Exercise 11 - Fraction coefficient

Subtract 4 from both sides: $\frac{2}{3}x = 6$

Divide both sides by $\frac{2}{3}$: $x = 9$

Check: $\frac{2}{3}(9) + 4 = 10$

$x = 9$

Exercise 12 - Variable term first

Subtract 7 from both sides: $-2x = -6$

Divide both sides by -2 : $x = 3$

Check: $-2(3) + 7 = 1$

$x = 3$

Exercise 13 - Decimal coefficient

Subtract 4.5 from both sides: $0.3x = 1.8$

Divide both sides by 0.3: $x = 6$

Check: $0.3(6) + 4.5 = 6.3$

$x = 6$

Exercise 14 - Fraction in parentheses

Divide both sides by 6: $x + \frac{1}{2} = \frac{5}{2}$

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

Check: $6(2 + \frac{1}{2}) = 15$

$x = 2$

Exercise 15 - Phone bill

Equation: $0.05m + 20 = 32.50$.

Subtract 20: $0.05m = 12.50$.

Divide by 0.05: $m = 250$.

250 minutes

Exercise 16 - Gym membership

$12m + 15 = 99$.

$12m = 84$.

$m = 7$

7 months

Exercise 17 - Perimeter

Divide by 2: $12 + w = 20$.

Subtract 12: $w = 8$.

8 feet

Exercise 18 - Falling temperature

$8 - 3h = -10$.

Subtract 8: $-3h = -18$.

Divide by -3 : $h = 6$

6 hours

Exercise 19 - Arithmetic and algebra

(a) Take off the fee: $53 - 5 = 48$. Then share: $48 \div 4 = 12$.

(b) $4t+5=53$, so $4t=48$ and $t=12$.

\$12 per ticket

Exercise 20 - Saving up

$$4.5w+2.75=29.75.$$

$$4.5w=27.$$

$$w=6$$

6 weeks

Week	Savings
0	\$2.75
3	\$16.25
6	\$29.75

Savings over time.

Exercise 21 - Number puzzle

$$3n-7.5=12.$$

Add 7.5: $3n=19.5$.

$$n=6.5$$

6.5