

Boost Free Lessons - Year 8 Maths

Lesson 9: 2 Step Equations

Name: _____ Grade: _____ Date: _____

Worked Example 1

Solve $5x - 8 = 27$

1. Undo the subtraction first: add 8 to both sides, giving $5x = 35$.
2. Now undo the multiplication: divide both sides by 5.
3. Check by substituting back: $5 \times 7 - 8 = 27$ (correct).

$x = 7$

Worked Example 2

Solve $\frac{m}{3} + 7 = 12$

1. Undo the addition first: subtract 7 from both sides, giving $\frac{m}{3} = 5$.
2. Now undo the division: multiply both sides by 3.
3. Check by substituting back: $15 \div 3 + 7 = 12$ (correct).

$m = 15$

Remember: Undo the operations in **reverse** order. Deal with the + or – first, then the $\times$ or $\div$.



Question 1: Solve the following equations.

1. $3x + 4 = 19$

2. $6y - 5 = 25$

3. $2a + 11 = 3$

4. $8k - 12 = 20$

5. $4n + 7 = 7$

6. $7p - 9 = 33$

7. $5t + 18 = 3$

8. $10c - 4 = 46$

9. $9w + 15 = 6$

10. $12d - 30 = 6$



Question 2: Solve the following equations.

1. $\frac{x}{2} + 5 = 11$

2. $\frac{m}{4} - 3 = 2$

3. $\frac{y}{5} + 8 = 8$

4. $3 - 2x = 9$

5. $20 - 4k = 0$

6. $\frac{a}{3} - 6 = -4$

7. $15 = 3n + 6$

8. $-5 = 2p - 11$



Question 3: Answer the following questions.

1. A gym charges a \$40 joining fee plus \$25 per week. A member has paid \$215 in total. Write an equation and find how many weeks they have been a member.
2. Four times a number, minus 9, equals 23. Write an equation and find the number.
3. A rectangle has a perimeter of 46 cm and a width of 8 cm. Write an equation and find its length.
4. A phone plan costs \$30 plus \$0.50 per gigabyte. The bill was \$45. Write an equation and find how many gigabytes were used.
5. Half a number, plus 12, equals 20. Write an equation and find the number.





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Answers: 2 Step Equations**Question 1**

1. $x = 5$

2. $y = 5$

3. $a = -4$

4. $k = 4$

5. $n = 0$

6. $p = 6$

7. $t = -3$

8. $c = 5$

9. $w = -1$

10. $d = 3$

Question 2

1. $x = 12$

2. $m = 20$

3. $y = 0$

4. $x = -3$

5. $k = 5$

6. $a = 6$

7. $n = 3$

8. $p = 3$

Question 3

1. $40 + 25w = 215$, so $w = 7$ weeks

2. $4n - 9 = 23$, so $n = 8$

3. $2L + 16 = 46$, so $L = 15$ cm

4. $30 + 0.5g = 45$, so $g = 30$ GB

5. $\frac{n}{2} + 12 = 20$, so $n = 16$

