

Boost Free Lessons - Year 8 Maths

Lesson 10: Equations with Brackets

Name: _____ Grade: _____ Date: _____

Worked Example 1

Solve $3(x + 4) = 21$

1. Expand the bracket first: $3 \times x = 3x$ and $3 \times 4 = 12$, giving $3x + 12 = 21$.
2. Subtract 12 from both sides: $3x = 9$.
3. Divide both sides by 3.
4. You could also divide both sides by 3 at the very start, giving $x + 4 = 7$.

$x = 3$

Worked Example 2

Solve $2(3m - 1) = 5m + 4$

1. Expand the left side: $2 \times 3m = 6m$ and $2 \times -1 = -2$, giving $6m - 2 = 5m + 4$.
2. Collect the variable on one side by subtracting $5m$ from both sides: $m - 2 = 4$.
3. Add 2 to both sides.
4. Check: $2(3 \times 6 - 1) = 34$ and $5 \times 6 + 4 = 34$ (correct).

$m = 6$

Remember: Expand the brackets first, then collect the variable terms on one side and the numbers on the other. If every term shares a common factor, you can divide through first instead.



Question 1: Solve the following equations.

1. $2(x + 3) = 14$

2. $4(y - 1) = 20$

3. $3(a + 5) = 27$

4. $5(k - 2) = 15$

5. $2(3n + 1) = 20$

6. $6(p - 4) = 0$

7. $3(2t + 5) = 33$

8. $4(w + 7) = 16$

9. $5(2c - 3) = 25$

10. $7(d + 2) = 7$



Question 2: Solve the following equations.

1. $2(x + 3) = x + 10$

2. $3(m - 2) = m + 8$

3. $4(y + 1) = 2y + 12$

4. $5(k - 3) = 2(k + 3)$

5. $2(a + 5) = 3(a - 1)$

6. $6(t - 1) = 4(t + 2)$

7. $3(2p + 1) = 4p + 11$

8. $2(3w - 4) = 5(w - 1)$





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Answers: Equations with Brackets**Question 1**

1. $x = 4$

2. $y = 6$

3. $a = 4$

4. $k = 5$

5. $n = 3$

6. $p = 4$

7. $t = 3$

8. $w = -3$

9. $c = 4$

10. $d = -1$

Question 2

1. $x = 4$

2. $m = 7$

3. $y = 4$

4. $k = 7$

5. $a = 13$

6. $t = 7$

7. $p = 4$

8. $w = 3$

Question 3

1. $2(x + 5) + 2(3) = 28$, so $x = 6$

2. $x = 7$

3. $5n + 3 = 18$, so $n = 3$

4. $6x + 30 = 180$, so $x = 25$

5. $x = 11$

