

BODMAS Questions With Answers: 30 questions for Class 5, 6 and 7 (Year 6 to 8)

The rule: Brackets; Orders (powers, roots); Division and Multiplication together, left to right; Addition and Subtraction together, left to right. BIDMAS and PEMDAS are the same rule. One step per line.

Level 1 (Class 5, Year 6): 10 minutes

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|------------------------------|-------------------------------|
| 1. $8 + 2 \times 5$ | 2. $(8 + 2) \times 5$ |
| 3. $20 - 12 \div 4$ | 4. $36 \div (3 + 3)$ |
| 5. $7 \times 3 - 4 \times 2$ | 6. $15 - 6 + 3$ |
| 7. $24 \div 4 \times 2$ | 8. $5 \times (10 - 4) \div 3$ |
| 9. $100 - 5 \times 8 + 6$ | 10. $(14 - 5) \times (2 + 3)$ |

Level 2 (Class 6, Year 7): 12 minutes

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|-------------------------------|--------------------------------------|
| 11. $3^2 + 4 \times 2$ | 12. $(3 + 4)^2 - 10$ |
| 13. $50 - 2 \times 3^2$ | 14. $2 \times (15 - (4 + 3))$ |
| 15. $81 \div 3^2 + 5$ | 16. $(2 + 3)^2 - (2^2 + 3^2)$ |
| 17. $6 \div 2 \times (1 + 2)$ | 18. $5 + 3 \times (12 \div 4)^2 - 7$ |
| 19. $100 - 3^2 \times 4$ | 20. $[(20 - 8) \div 4 + 1] \times 5$ |

Level 3 (Class 7, Year 8): 15 minutes

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|------------------------------------|---|
| 21. $-3 + 4 \times (-2)$ | 22. $(-3)^2 - 3^2$ |
| 23. $12 - (-4) \times 2 \div (-8)$ | 24. $\frac{1}{2} \times (6 + 10) - 2^3$ |
| 25. $0.5 \times 8 + 3 \times 0.2$ | 26. $(-2)^3 + 10 \div (-5)$ |
| 27. $3 \times [7 - (2 - 5)]$ | 28. $(\frac{1}{3} + \frac{1}{6}) \times 12 - 4$ |
| 29. $40 \div (-4) - (-3) \times 2$ | 30. $\{[(6 + 2) \times 3] - 4^2\} \div 2$ |

Notation: 2 means squared, 3 means cubed, $\div$ means divided by.

Answers, with the working for the ones that catch people out

Level 1: 1) 18 2) 50 3) 17 4) 6 5) 13 6) 12 7) 12 8) 10 9) 66 10) 45

Q5: $7 \times 3 - 4 \times 2 \rightarrow 21 - 8 = 13$. Q6: $15 - 6 + 3 \rightarrow$ left to right: $9 + 3 = 12$ (not $15 - 9$). Q7: $24 / 4 \times 2 \rightarrow$ left to right: $6 \times 2 = 12$ (not $24 / 8$). Q9: $100 - 40 + 6 \rightarrow 60 + 6 = 66$.

Level 2: 11) 17 12) 39 13) 32 14) 16 15) 14 16) 12 17) 9 18) 25 19) 64 20) 20

Q13: $3^2 = 9$ first, so $50 - 2 \times 9 = 50 - 18 = 32$ (not $(2 \times 3)^2$). Q16: $5^2 - (4 + 9) = 25 - 13 = 12$; $(2 + 3)^2$ is NOT $2^2 + 3^2$. Q17: bracket first: $6 / 2 \times 3$, then left to right: $3 \times 3 = 9$. Q18: $5 + 3 \times 9 - 7 = 5 + 27 - 7 = 25$. Q20: $20 - 8 = 12$; $12 / 4 = 3$; $3 + 1 = 4$; $4 \times 5 = 20$.

Level 3: 21) -11 22) 0 23) 11 24) 0 25) 4.6 26) -10 27) 30 28) 2 29) -4 30) 4

Q22: $(-3)^2 = 9$ and $3^2 = 9$, so $9 - 9 = 0$; note that -3^2 on its own means $-(3^2) = -9$. Q23: $(-4) \times 2 = -8$; $-8 / (-8) = 1$; $12 - 1 = 11$. Q24: $1/2 \times 16 = 8$; $2^3 = 8$; $8 - 8 = 0$. Q27: $2 - 5 = -3$; $7 - (-3) = 10$; $3 \times 10 = 30$. Q29: $40 / (-4) = -10$; $(-3) \times 2 = -6$; $-10 - (-6) = -4$. Q30: $8 \times 3 = 24$; $4^2 = 16$; $24 - 16 = 8$; $8 / 2 = 4$.

The five mistakes

1) Doing D before M because the letters say so ($24 / 4 \times 2 = 12$, left to right). 2) Doing A before S for the same reason ($15 - 6 + 3 = 12$). 3) Squaring the wrong thing ($2 \times 3^2 = 18$, not 36). 4) Removing brackets too early: innermost first, rewrite the whole line each step. 5) Losing the sign: $(-3)^2 = 9$ but $-3^2 = -9$.

Where it sits: CBSE Class 5-7; England Year 6 (SATs arithmetic) and KS3; US Grade 5-7 (PEMDAS). 1-on-1 online maths: sciencewithshobha.com/subjects/cbse-class-6-8-maths/