

Answer Key — Mental Division Strategies

Year 4 Mathematics · Number and algebra · WA4MNADI1

Section A — Fluency (16 marks, 1 mark each)

1. 21
2. 32
3. 12
4. 13
5. 19
6. 13
7. 18
8. 11
9. 7
10. 19
11. 17
12. 19
13. 13
14. 14
15. 11
16. 14

Section B — Core (21 marks)

1. $96 \div 4 = \$24$ each. [2 marks working, 1 mark correct answer]
2. (a) $84 \div 4 = 21$ students. (b) $96 \div 4 = 24$ more students each class, so $21 + 24 = 45$ students in each class. [2 marks part (a), 2 marks part (b)]
3. $72 \div 6 = 12$ students per group. [2 marks working, 1 mark correct answer]
4. (a) $95 \div 5 = 19$ oranges per box. (b) $19 \times 3 = 57$ oranges sold. [2 marks part (a), 2 marks part (b)]
5. $78 \div 6 = \$13$ per family. [2 marks working, 1 mark correct answer]
6. (a) $88 \div 8 = 11$ boxes. (b) $11 \times \$6 = \$66$. [2 marks part (a), 2 marks part (b)]

Section C — Reasoning (9 marks) — sample responses, award marks for valid reasoning

1. Splitting 96 into $80 + 16$ turns one harder division into two easier ones ($80 \div 4 = 20$ and $16 \div 4 = 4$) that can be worked out mentally and then added, $20 + 4 = 24$, instead of dividing 96 by 4 all at once. [2 marks]
2. $84 = 80 + 4$, so $84 \div 4 = (80 \div 4) + (4 \div 4) = 20 + 1 = 21$, which splits the division by place value and combines the parts, giving the same answer as dividing 84 by 4 directly. [2 marks]
3. Choosing friendly parts that divide evenly (like multiples of the divisor) avoids leftover remainders in each part, which keeps the mental calculation simple and avoids extra steps. [2 marks]
4. False. 71 is not a multiple of 4, so it cannot be split into two parts that are both exact multiples of 4 and add to 71 — for example $68 + 3$ divides evenly for 68 ($68 \div 4 = 17$) but not for 3, since 71 itself is not evenly divisible by 4. [3 marks]

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Section D — Challenge (7 marks)

1. $14 \times 6 = 84$. [2 marks]
2. Any two multiples of 12 between 10 and 99, e.g. 36 and 72. [2 marks]
3. $96 \div 8 = 12$, so the number $\div 7 = 12$, giving $12 \times 7 = 84$. [2 marks correct method, 1 mark correct answer]