

Answer Key — Estimating Sums & Differences

Year 4 Mathematics · Number and algebra · WA4MNAAS1

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

1. $3,900 + 4,200 = 8,100$
2. $2,500 + 1,800 = 4,300$
3. $6,700 - 2,300 = 4,400$
4. $5,100 + 3,200 = 8,300$
5. $8,300 - 3,700 = 4,600$
6. $2,000 + 2,100 = 4,100$
7. $7,200 - 1,500 = 5,700$
8. $4,600 + 2,300 = 6,900$
9. $9,100 - 4,500 = 4,600$
10. $3,500 + 4,300 = 7,800$
11. $6,200 - 2,800 = 3,400$
12. $2,200 + 3,800 = 6,000$
13. $5,700 - 1,200 = 4,500$
14. $1,800 + 2,700 = 4,500$
15. $8,900 - 3,500 = 5,400$
16. $4,300 + 5,700 = 10,000$

Section B — Core (21 marks)

1. $3,900 + 2,200 = 6,100$ participants (estimate). [2 marks rounding, 1 mark estimate]
2. (a) $4,500 + 3,200 = 7,700$ items (estimate). (b) Yes — the estimated total (7,700) is below the 8,000 capacity, so there should be enough room. [2 marks part (a), 2 marks part (b)]
3. $6,200 + 2,800 = \$9,000$ (estimate). [2 marks rounding, 1 mark estimate]
4. (a) $8,500 - 5,300 = 3,200$ items (estimate). (b) Lower, by roughly 3,200 items. [2 marks part (a), 2 marks part (b)]
5. $9,700 - 4,300 = 5,400$ (estimate). [2 marks rounding, 1 mark estimate]
6. (a) $3,600 + 2,800 = 6,400$ students (estimate). (b) $3,600 - 2,800 = 800$ more students (estimate). [2 marks part (a), 2 marks part (b)]

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

1. Estimating lets you quickly check whether an exact answer is reasonable, and is useful when you only need an approximate value or want to spot calculation mistakes. [2 marks]
2. The student rounded down instead of checking the tens digit; since the tens digit of 4,567 is 6 (5 or more), it should round up to 4,600, not down to 4,500. [2 marks]
3. Rounding changes the numbers slightly before adding or subtracting, so the estimate is only ever close to, not exactly equal to, the real answer. [2 marks]
4. Mostly true, though the estimate could equal the real answer if the original numbers were already multiples of 100. Rounding 3,912 up to 4,000 and 4,187 up to 4,200 gives an estimate of 8,200, which is greater than the real sum of 8,099. [3 marks]

Section D — Challenge (7 marks)

1. 3,850 (rounds to 3,900) and 2,350 (rounds to 2,400) are the smallest possible original values. [1 mark each]
2. Any two valid pairs whose rounded (nearest 100) values sum to 7,000, e.g. 3,000 + 4,000, and 2,960 + 4,030. [2 marks]
3. Exact answer = 3,123. Nearest-100 estimate = $5,600 - 2,500 = 3,100$ (closer). Nearest-1,000 estimate = $6,000 - 2,000 = 4,000$ (further away). The nearest-100 estimate is closer because rounding to a smaller place value changes the numbers less, keeping the estimate nearer to the real answer. [1 mark exact answer, 1 mark both estimates, 1 mark correct explanation]