

35 Most Important CAT Averages Questions

With step-by-step solutions | Foundation, Core and CAT-Level practice | Quant / Arithmetic

Section	Questions	Target time per question	Goal
Foundation	Q1 - Q10	30 - 45 seconds	Build speed and formula recall
Core	Q11 - Q22	60 - 90 seconds	Master weighted average, replacement, average speed
CAT-Level	Q23 - Q35	90 - 150 seconds	Handle max/min, alligation and multi-step logic

How to use this set: attempt each section under a timer, cover the solution, then compare your method with the one given. Wherever possible, solve using totals (sum = average x number of items) rather than averages alone. A full answer key is on the last page.

Section A: Foundation

Q1. The average of 5 numbers is 24. If one of the numbers, 30, is removed, what is the average of the remaining four numbers?

(a) 20 (b) 22.5 (c) 23 (d) 24

Answer: (b) 22.5

Solution: Total of 5 numbers = $24 \times 5 = 120$. After removing 30, total = 90 for 4 numbers. New average = $90 / 4 = 22.5$.

Q2. The average of 10 numbers is 15. Each number is multiplied by 4 and then 3 is added to it. What is the new average?

(a) 48 (b) 57 (c) 60 (d) 63

Answer: (d) 63

Solution: Multiplying every number by 4 multiplies the average by 4 ($15 \times 4 = 60$). Adding 3 to every number adds 3 to the average. New average = 63.

Q3. What is the average of the first 25 natural numbers?

(a) 12 (b) 12.5 (c) 13 (d) 13.5

Answer: (c) 13

Solution: Average of the first n natural numbers = $(n + 1) / 2 = 26 / 2 = 13$.

Q4. The average of five consecutive odd numbers is 41. What is the largest of these numbers?

(a) 43 (b) 45 (c) 47 (d) 49

Answer: (b) 45

Solution: For an odd number of equally spaced terms, the average is the middle term. So the numbers are 37, 39, 41, 43, 45. Largest = 45.

Q5. The average of 7 numbers is 20. The average of the first four is 18 and the average of the last four is 24. What is the fourth number?

- (a) 24 (b) 26 (c) 28 (d) 30

Answer: (c) 28

Solution: Total of 7 numbers = 140. First four total = 72, last four total = 96. The fourth number is counted in both groups, so $72 + 96 = 168 = 140 + (\text{fourth number})$. Fourth number = 28.

Q6. In a class, 30 students have an average score of 60 and another 20 students have an average score of 75. What is the average score of all 50 students?

- (a) 64 (b) 65 (c) 66 (d) 67.5

Answer: (c) 66

Solution: Combined total = $30 \times 60 + 20 \times 75 = 1800 + 1500 = 3300$. Average = $3300 / 50 = 66$.

Q7. The average of A, B and C is 40. The average of A and B is 35 and the average of B and C is 45. What is B?

- (a) 30 (b) 35 (c) 40 (d) 45

Answer: (c) 40

Solution: $A+B+C = 120$; $A+B = 70$, so $C = 50$. $B+C = 90$, so $A = 30$. $B = 120 - 30 - 50 = 40$.

Q8. A student's average over 6 subjects is 72. After a 7th subject is added, the average becomes 74. How many marks did the student score in the 7th subject?

- (a) 80 (b) 84 (c) 86 (d) 90

Answer: (c) 86

Solution: New total = $74 \times 7 = 518$. Old total = $72 \times 6 = 432$. 7th subject = $518 - 432 = 86$.

Q9. The average of the first n even natural numbers is 25. Find n.

- (a) 24 (b) 25 (c) 49 (d) 50

Answer: (a) 24

Solution: Average of the first n even numbers = $n + 1$. So $n + 1 = 25$ and $n = 24$.

Q10. What is the average of the squares of the first 7 natural numbers?

- (a) 16 (b) 18 (c) 20 (d) 22

Answer: (c) 20

Solution: Sum of squares = $n(n+1)(2n+1)/6 = 7 \times 8 \times 15 / 6 = 140$. Average = $140 / 7 = 20$.

Section B: Core

Q11. A batsman scores 85 in his 17th innings and his average increases by 3. What is his average after the 17th innings?

- (a) 34 (b) 36 (c) 37 (d) 40

Answer: (c) 37

Solution: New average = score in the new innings - (number of earlier innings $\times$ increase) = $85 - 16 \times 3 = 37$.

Check: old average $34 \times 16 = 544$; $544 + 85 = 629$; $629 / 17 = 37$.

Q12. The average weight of 8 persons rises by 2.5 kg when a person weighing 65 kg is replaced by a new person. What is the weight of the new person?

- (a) 80 kg (b) 82.5 kg (c) 85 kg (d) 90 kg

Answer: (c) 85 kg

Solution: Total weight increases by $8 \times 2.5 = 20$ kg. New person = $65 + 20 = 85$ kg.

Q13. The average age of 11 cricketers is 25 years. When the captain is excluded, the average age of the remaining 10 falls by 1 year. How old is the captain?

- (a) 33 (b) 35 (c) 36 (d) 38

Answer: (b) 35

Solution: Total with captain = 275. Without captain = $24 \times 10 = 240$. Captain = $275 - 240 = 35$ years.

Q14. The average score of 12 students is 40. A new student joins and the average drops by 1. What did the new student score?

- (a) 25 (b) 27 (c) 29 (d) 30

Answer: (b) 27

Solution: New total = $39 \times 13 = 507$. Old total = $40 \times 12 = 480$. New student = 27. (Shortcut: $40 - 13 \times 1 = 27$.)

Q15. A car goes uphill at 60 km/h and returns downhill over the same route at 40 km/h. What is its average speed for the round trip?

- (a) 48 km/h (b) 50 km/h (c) 52 km/h (d) 55 km/h

Answer: (a) 48 km/h

Solution: For equal distances, average speed = $2xy / (x + y) = 2 \times 60 \times 40 / 100 = 48$ km/h. It is NOT the simple average 50, because more time is spent at the slower speed.

Q16. A man covers three equal distances at 30 km/h, 40 km/h and 60 km/h. What is his average speed for the whole journey?

- (a) 40 km/h (b) 43.33 km/h (c) 45 km/h (d) 46.67 km/h

Answer: (a) 40 km/h

Solution: Take each distance as 120 km. Times = 4 h, 3 h, 2 h = 9 h. Distance = 360 km. Average speed = $360 / 9 = 40$ km/h.

Q17. A car travels from A to B at 50 km/h. At what speed must it return so that the average speed for the round trip is 60 km/h?

- (a) 70 km/h (b) 72 km/h (c) 75 km/h (d) 80 km/h

Answer: (c) 75 km/h

Solution: $2xy/(x+y) = 60$ with $x = 50$: $1/50 + 1/y = 2/60 = 1/30$. So $1/y = 1/30 - 1/50 = 2/150 = 1/75$. $y = 75$ km/h.

Q18. A company has 25 employees with an average salary of Rs. 50,000. The 5 managers earn an average of Rs. 70,000. What is the average salary of the other 20 employees?

- (a) Rs. 42,000 (b) Rs. 45,000 (c) Rs. 46,000 (d) Rs. 48,000

Answer: (b) Rs. 45,000

Solution: Total = $25 \times 50,000 = 12,50,000$. Managers = $5 \times 70,000 = 3,50,000$. Others = $9,00,000$. Average = $9,00,000 / 20 = \text{Rs. } 45,000$.

Q19. Group A has 20 students averaging 55, group B has 30 students averaging 60 and group C has 50 students averaging 70. What is the average of all 100 students?

- (a) 62 (b) 63 (c) 64 (d) 65

Answer: (c) 64

Solution: Total = $20 \times 55 + 30 \times 60 + 50 \times 70 = 1100 + 1800 + 3500 = 6400$. Average = $6400 / 100 = 64$.

Q20. A cricketer's average after 10 innings is 45. How many runs must he score in the 11th innings to raise his average by 5?

- (a) 95 (b) 100 (c) 105 (d) 110

Answer: (b) 100

Solution: Required score = old average + (number of innings after addition $\times$ increase) = $45 + 11 \times 5 = 100$.
Check: $450 + 100 = 550$; $550 / 11 = 50$.

Q21. A student has an average of 62 after 4 tests. What average must she score in the next 2 tests to have an overall average of 70 after 6 tests?

- (a) 80 (b) 84 (c) 86 (d) 88

Answer: (c) 86

Solution: Required total after 6 tests = $70 \times 6 = 420$. Total so far = $62 \times 4 = 248$. Next two tests total 172, so average = 86.

Q22. The average temperature of a 30-day month is 48 degrees. The first 15 days averaged 45, the next 10 days averaged 50. What was the average of the last 5 days?

- (a) 50 (b) 52 (c) 53 (d) 55

Answer: (c) 53

Solution: Month total = $48 \times 30 = 1440$. First 15 days = 675; next 10 days = 500. Last 5 days = $1440 - 1175 = 265$. Average = $265 / 5 = 53$.

Section C: CAT-Level

Q23. The average of 11 numbers is 60. The average of the first six is 58 and the average of the last six is 63. What is the sixth number?

- (a) 60 (b) 64 (c) 66 (d) 68

Answer: (c) 66

Solution: Total = 660. First six = 348, last six = 378. The sixth number is counted twice: $348 + 378 - 660 = 66$.

Q24. The average age of a family of 5 members is 24 years and the youngest member is 8 years old. What was the average age of the family just before the youngest was born?

- (a) 18 (b) 20 (c) 22 (d) 23

Answer: (b) 20

Solution: Current total = 120. The other four members total $120 - 8 = 112$ now. Eight years ago they totalled $112 - 4 \times 8 = 80$. Average = $80 / 4 = 20$ years.

Q25. The average of 5 distinct positive integers is 20. What is the maximum possible value of the largest integer?

- (a) 85 (b) 90 (c) 94 (d) 96

Answer: (b) 90

Solution: Total = 100. To make one number as large as possible, make the other four as small as possible: 1, 2, 3, 4 (sum 10). Largest = $100 - 10 = 90$.

Q26. The average of 6 distinct positive integers is 15. What is the minimum possible value of the largest integer?

- (a) 16 (b) 17 (c) 18 (d) 19

Answer: (c) 18

Solution: Total = 90. To keep the largest as small as possible, the others should be just below it: $x + (x-1) + \dots + (x-5) = 6x - 15$ must be at least 90, so x is at least 17.5, i.e. 18. Example: 18, 17, 16, 15, 14, 10 sums to 90.

Q27. Consider the set $S = \{1, 2, 3, \dots, 2n\}$. Let X be the average of the even numbers in S and Y the average of the odd numbers in S . What is $X - Y$?

- (a) 0 (b) 1 (c) n (d) $n/2$

Answer: (b) 1

Solution: Even numbers 2, 4, ..., $2n$ have average $n + 1$. Odd numbers 1, 3, ..., $2n-1$ have average n . So $X - Y = 1$.

Q28. The average of the last four of nine consecutive integers is p . What is the average of all nine integers?

- (a) $p - 2$ (b) $p - 2.5$ (c) $p - 3$ (d) $p - 3.5$

Answer: (b) $p - 2.5$

Solution: Let the integers be $x, x+1, \dots, x+8$. The last four average $x + 6.5 = p$. The average of all nine is the middle term, $x + 4 = p - 2.5$.

Q29. Two varieties of rice costing Rs. 40/kg and Rs. 60/kg are mixed to get a blend worth Rs. 52/kg. In what ratio (cheaper : dearer) are they mixed?

- (a) 1 : 1 (b) 2 : 3 (c) 3 : 2 (d) 3 : 4

Answer: (b) 2 : 3

Solution: By alligation: cheaper : dearer = $(60 - 52) : (52 - 40) = 8 : 12 = 2 : 3$.

Q30. The average of 10 numbers is 27. The largest number is 50 and the smallest is 10. What is the average of the remaining 8 numbers?

- (a) 25 (b) 26 (c) 26.25 (d) 27

Answer: (c) 26.25

Solution: Total = 270. Removing 50 and 10 leaves 210. Average = $210 / 8 = 26.25$.

Q31. The average mark of a class is 62. Boys average 60 and girls average 65. What is the ratio of boys to girls?

- (a) 2 : 3 (b) 3 : 2 (c) 4 : 3 (d) 5 : 3

Answer: (b) 3 : 2

Solution: Alligation: boys : girls = $(65 - 62) : (62 - 60) = 3 : 2$. The class average is closer to the boys' average, so there are more boys.

Q32. The average age of 6 people is 30. Two of them, aged 28 and 32, leave and two new people join. The average age becomes 31. What is the average age of the two new people?

- (a) 31 (b) 32 (c) 33 (d) 34

Answer: (c) 33

Solution: Total before = 180. After the two leave: $180 - 60 = 120$ (4 people). New total = $31 \times 6 = 186$, so the two newcomers total 66. Average = 33.

Q33. What is the average of the first 20 terms of an arithmetic progression whose first term is 5 and common difference is 3?

- (a) 30.5 (b) 32 (c) 33.5 (d) 35

Answer: (c) 33.5

Solution: Average of an AP = $(\text{first} + \text{last}) / 2$. 20th term = $5 + 19 \times 3 = 62$. Average = $(5 + 62) / 2 = 33.5$.

Q34. A cyclist covers the first half of a 120 km journey at 20 km/h and the second half at 30 km/h. What is the average speed for the whole journey?

- (a) 24 km/h (b) 25 km/h (c) 26 km/h (d) 28 km/h

Answer: (a) 24 km/h

Solution: Time = $60/20 + 60/30 = 3 + 2 = 5$ hours. Average speed = $120 / 5 = 24$ km/h (not 25).

Q35. The average of 6 numbers is 30. If 2 is added to the first number, 4 to the second, 6 to the third and so on (adding 2 more each time), what is the new average?

(a) 33 (b) 35 (c) 37 (d) 39

Answer: (c) 37

Solution: Total added = $2 + 4 + 6 + 8 + 10 + 12 = 42$. The average rises by $42 / 6 = 7$. New average = 37.

Answer Key

Q	Ans	Q	Ans	Q	Ans
1	(b) 22.5	13	(b) 35	25	(b) 90
2	(d) 63	14	(b) 27	26	(c) 18
3	(c) 13	15	(a) 48 km/h	27	(b) 1
4	(b) 45	16	(a) 40 km/h	28	(b) p - 2.5
5	(c) 28	17	(c) 75 km/h	29	(b) 2 : 3
6	(c) 66	18	(b) Rs. 45,000	30	(c) 26.25
7	(c) 40	19	(c) 64	31	(b) 3 : 2
8	(c) 86	20	(b) 100	32	(c) 33
9	(a) 24	21	(c) 86	33	(c) 33.5
10	(c) 20	22	(c) 53	34	(a) 24 km/h
11	(c) 37	23	(c) 66	35	(c) 37
12	(c) 85 kg	24	(b) 20		