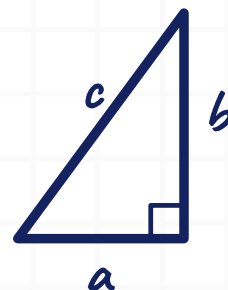
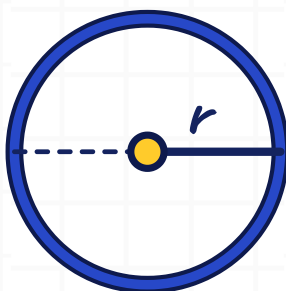


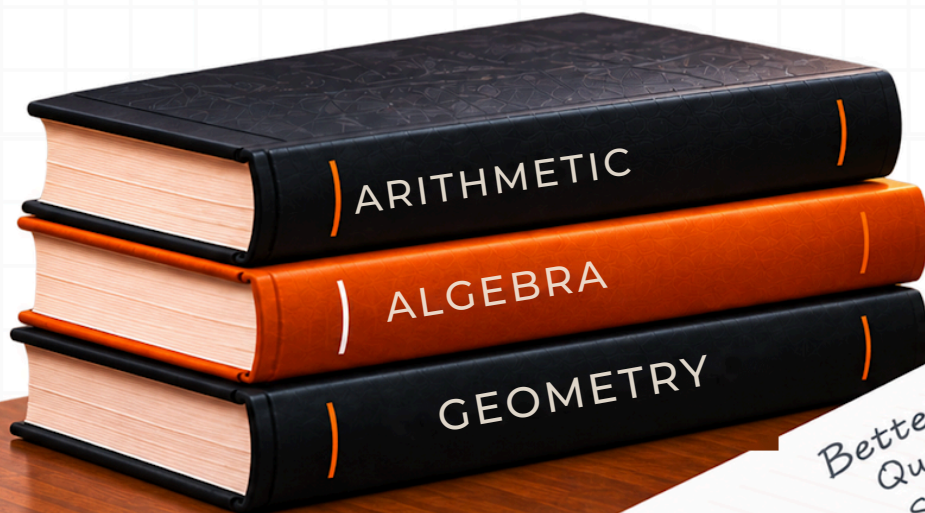
# CAT PYQ

## Averages

$$a^2 + b^2 = c^2$$



$$D = S \times T$$



Better  
Questions  
Stronger  
Concepts  
Brighter Future

40 Questions

Quantitative Aptitude

Years: 1997-2025

## General Instructions

- (i) This collection contains **40 Quantitative Aptitude questions** classified under **Averages**, following the supplied CD PYQ sheet.
- (ii) **Coverage:** CAT 1997-2025. Questions are grouped by their source year and sitting, with continuous numbering from **1 to 40**.
- (iii) This collection has **27 multiple choice questions (MCQs)** and **13 Type In The Answer (TITA) questions**. Read every option before choosing the answer. Enter a response for questions marked "Type in the answer."
- (iv) Original mathematical expressions, question wording and option order are retained. Use the diagrams and data provided with each question.
- (v) Each question carries its original year or exam date, sitting where available, and source question number.
- (vi) Use this collection for practice. Follow the timing and marking scheme of the original sitting when attempting a timed exercise.
- (vii) Answer keys and solutions are not included. Passages and questions may continue onto the following page.

## CAT 2025 Slot 2 - Questions 1-1

1. The average number of copies of a book sold per day by a shopkeeper is 60 in the initial seven days and 63 in the initial eight days, after the book launch. On the ninth day, she sells 11 copies less than the eighth day, and the average number of copies sold per day from second day to ninth day becomes 66. The number of copies sold on the first day of the book launch is

30 Nov 2025, Slot 2, Q48

Type in the answer.

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### CAT 2025 Slot 3 - Questions 2-2

2. The average salary of 5 managers and 25 engineers in a company is 60000 rupees. If each of the managers received 20% salary increase while the salary of the engineers remained unchanged, the average salary of all 30 employees would have increased by 5%. The average salary, in rupees, of the engineers is

30 Nov 2025, Slot 3, Q62

(A) 45000

(B) 50000

(C) 54000

(D) 40000

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### CAT 2024 Slot 1 - Questions 3-3

3. There are four numbers such that average of first two numbers is 1 more than the first number, average of first three numbers is 2 more than average of first two numbers, and average of first four numbers is 3 more than average of first three numbers. Then, the difference between the largest and the smallest numbers, is

24 Nov 2024, Slot 1, Q64

Type in the answer.

---

### CAT 2024 Slot 2 - Questions 4-4

4. A company has 40 employees whose names are listed in a certain order. In the year 2022, the average bonus of the first 30 employees was Rs. 40000, of the last 30 employees was Rs. 60000, and of the first 10 and last 10 employees together was Rs. 50000. Next year, the average bonus of the first 10 employees increased by 100%, of the last 10 employees increased by 200% and of the remaining employees was unchanged. Then, the average bonus, in rupees, of all the 40 employees together in the year 2023 was

24 Nov 2024, Slot 2, Q56

- |           |           |
|-----------|-----------|
| (A) 95000 | (B) 90000 |
| (C) 80000 | (D) 85000 |
-

### CAT 2024 Slot 3 - Questions 5-5

5. The average of three distinct real numbers is 28. If the smallest number is increased by 7 and the largest number is reduced by 10, the order of the numbers remains unchanged, and the new arithmetic mean becomes 2 more than the middle number, while the difference between the largest and the smallest numbers becomes 64. Then, the largest number in the original set of three numbers is

24 Nov 2024, Slot 3, Q49

Type in the answer.

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### CAT 2023 Slot 1 - Questions 6-6

6. In an examination, the average marks of 4 girls and 6 boys is 24. Each of the girls has the same marks while each of the boys has the same marks. If the marks of any girl is at most double the marks of any boy, but not less than the marks of any boy, then the number of possible distinct integer values of the total marks of 2 girls and 6 boys is

26 Nov 2023, Slot 1, Q56

- |        |        |
|--------|--------|
| (A) 21 | (B) 20 |
| (C) 22 | (D) 19 |
-

## CAT 2023 Slot 2 - Questions 7-8

7. In a company, 20% of the employees work in the manufacturing department. If the total salary obtained by all the manufacturing employees is one-sixth of the total salary obtained by all the employees in the company, then the ratio of the average salary obtained by the manufacturing employees to the average salary obtained by the nonmanufacturing employees is

26 Nov 2023, Slot 2, Q57

- (A) 6:5 (B) 4:5  
(C) 5:4 (D) 5:6

8. If a certain amount of money is divided equally among  $n$  persons, each one receives Rs 352. However, if two persons receive Rs 506 each and the remaining amount is divided equally among the other persons, each of them receive less than or equal to Rs 330. Then, the maximum possible value of  $n$  is

26 Nov 2023, Slot 2, Q58

Type in the answer.

### CAT 2023 Slot 3 - Questions 9-9

9. There are three persons A, B and C in a room. If a person D joins the room, the average weight of the persons in the room reduces by  $x$  kg. Instead of D, if person E joins the room, the average weight of the persons in the room increases by  $2x$  kg. If the weight of E is 12 kg more than that of D, then the value of  $x$  is

26 Nov 2023, Slot 3, Q56

- |       |         |
|-------|---------|
| (A) 2 | (B) 0.5 |
| (C) 1 | (D) 1.5 |
-

### CAT 2022 Slot 1 - Questions 10-11

10. The average weight of students in a class increases by 600 gm when some new students join the class. If the average weight of the new students is 3 kg more than the average weight of the original students, then the ratio of the number of original students to the number of new students is

27 Nov 2022, Slot 1, Q46

(A) 1 : 4

(B) 1 : 2

(C) 4 : 1

(D) 3 : 1

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11. The average of three integers is 13. When a natural number  $n$  is included, the average of these four integers remains an odd integer. The minimum possible value of  $n$  is

27 Nov 2022, Slot 1, Q58

(A) 3

(B) 4

(C) 5

(D) 1

## CAT 2022 Slot 2 - Questions 12-14

12. The average of a non-decreasing sequence of  $N$  numbers  $a_1, a_2, \dots, a_N$  is 300. If  $a_1$  is replaced by  $6a_1$ , the new average becomes 400. Then, the number of possible values of  $a_1$ , is

27 Nov 2022, Slot 2, Q46

Type in the answer.

13. Manu earns ₹4000 per month and wants to save an average of ₹550 per month in a year. In the first nine months, his monthly expense was ₹3500, and he foresees that, tenth month onward, his monthly expense will increase to ₹3700. In order to meet his yearly savings target, his monthly earnings, in rupees, from the tenth month onward should be

27 Nov 2022, Slot 2, Q48

- |          |          |
|----------|----------|
| (A) 4400 | (B) 4200 |
| (C) 4300 | (D) 4350 |

14. Five students, including Amit, appear for an examination in which possible marks are integers between 0 and 50, both inclusive. The average marks for all the students is 38 and exactly three students got more than 32. If no two students got the same marks and Amit got the least marks among the five students, then the difference between the highest and lowest possible marks of Amit is

27 Nov 2022, Slot 2, Q65

- |        |        |
|--------|--------|
| (A) 22 | (B) 21 |
| (C) 24 | (D) 20 |

### CAT 2022 Slot 3 - Questions 15-16

15. Consider six distinct natural numbers such that the average of the two smallest numbers is 14, and the average of the two largest numbers is 28. Then, the maximum possible value of the average of these six numbers is

27 Nov 2022, Slot 3, Q48

- (A) 23 (B) 24  
(C) 23.5 (D) 22.5
- 

16. In an examination, the average marks of students in sections A and B are 32 and 60, respectively. The number of students in section A is 10 less than that in section B. If the average marks of all the students across both the sections combined is an integer, then the difference between the maximum and minimum possible number of students in section A is

27 Nov 2022, Slot 3, Q58

Type in the answer.

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### CAT 2021 Slot 1 - Questions 17-18

17. Onion is sold for 5 consecutive months at the rate of Rs 10, 20, 25, 25, and 50 per kg, respectively. A family spends a fixed amount of money on onion for each of the first three months, and then spends half that amount on onion for each of the next two months. The average expense for onion, in rupees per kg, for the family over these 5 months is closest to

28 Nov 2021, Slot 1, Q50

- (A) 26 (B) 18  
(C) 16 (D) 20

18. Suppose hospital A admitted 21 less Covid infected patients than hospital B, and all eventually recovered. The sum of recovery days for patients in hospitals A and B were 200 and 152, respectively. If the average recovery days for patients admitted in hospital A was 3 more than the average in hospital B then the number admitted in hospital A was

28 Nov 2021, Slot 1, Q57

Type in the answer.

## CAT 2021 Slot 2 - Questions 19-19

19. In a football tournament, a player has played a certain number of matches and 10 more matches are to be played. If he scores a total of one goal over the next 10 matches, his overall average will be 0.15 goals per match. On the other hand, if he scores a total of two goals over the next 10 matches, his overall average will be 0.2 goals per match. The number of matches he has played is

28 Nov 2021, Slot 2, Q61

Type in the answer.

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### CAT 2021 Slot 3 - Questions 20-20

**20.** The arithmetic mean of scores of 25 students in an examination is 50. Five of these students top the examination with the same score. If the scores of the other students are distinct integers with the lowest being 30, then the maximum possible score of the toppers is

28 Nov 2021, Slot 3, Q52

Type in the answer.

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### CAT 2020 Slot 2 - Questions 21-21

21. In a group of 10 students, the mean of the lowest 9 scores is 42 while the mean of the highest 9 scores is 47. For the entire group of 10 students, the maximum possible mean exceeds the minimum possible mean by

29 Nov 2020, Slot 2, Q62

- |       |       |
|-------|-------|
| (A) 5 | (B) 4 |
| (C) 3 | (D) 6 |
-

### CAT 2020 Slot 3 - Questions 22-23

**22.** A batsman played  $n + 2$  innings and got out on all occasions. His average score in these  $n + 2$  innings was 29 runs and he scored 38 and 15 runs in the last two innings. The batsman scored less than 38 runs in each of the first  $n$  innings. In these  $n$  innings, his average score was 30 runs and lowest score was  $x$  runs. The smallest possible value of  $x$  is

29 Nov 2020, Slot 3, Q52

- |       |       |
|-------|-------|
| (A) 4 | (B) 3 |
| (C) 2 | (D) 1 |

**23.** Dick is thrice as old as Tom and Harry is twice as old as Dick. If Dick's age is 1 year less than the average age of all three, then Harry's age, in years, is

29 Nov 2020, Slot 3, Q57

Type in the answer.

### CAT 2019 Slot 1 - Questions 24-24

24. Ramesh and Gautam are among 22 students who write an examination. Ramesh scores 82.5. The average score of the 21 students other than Gautam is 62. The average score of all the 22 students is one more than the average score of the 21 students other than Ramesh. The score of Gautam is

24 Nov 2019, Slot 1, Q91

- (A) 53
- (C) 48

- (B) 51
  - (D) 49
-

## CAT 2019 Slot 2 - Questions 25-25

25. The average of 30 integers is 5. Among these 30 integers, there are exactly 20 which do not exceed 5. What is the highest possible value of the average of these 20 integers?

24 Nov 2019, Slot 2, Q67

- |         |       |
|---------|-------|
| (A) 3.5 | (B) 5 |
| (C) 4.5 | (D) 4 |
-

### CAT 2018 Slot 1 - Questions 26-27

26. In an apartment complex, the number of people aged 51 years and above is 30 and there are at most 39 people whose ages are below 51 years. The average age of all the people in the apartment complex is 38 years. What is the largest possible average age, in years, of the people whose ages are below 51 years?

25 Nov 2018, Slot 1, Q88

- |        |        |
|--------|--------|
| (A) 27 | (B) 25 |
| (C) 26 | (D) 28 |

27. A CAT aspirant appears for a certain number of tests. His average score increases by 1 if the first 10 tests are not considered, and decreases by 1 if the last 10 tests are not considered. If his average scores for the first 10 and the last 10 tests are 20 and 30, respectively, then the total number of tests taken by him is

25 Nov 2018, Slot 1, Q98

Type in the answer:

## CAT 2018 Slot 2 - Questions 28-28

28. The arithmetic mean of  $x$ ,  $y$  and  $z$  is 80, and that of  $x$ ,  $y$ ,  $z$ ,  $u$  and  $v$  is 75, where  $u = (x+y)/2$  and  $v = (y+z)/2$ . If  $x \geq z$ , then the minimum possible value of  $x$  is

25 Nov 2018, Slot 2, Q82

Type in the answer.

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### CAT 2017 Slot 1 - Questions 29-30

**29.** An elevator has a weight limit of 630 kg. It is carrying a group of people of whom the heaviest weighs 57 kg and the lightest weighs 53 kg. What is the maximum possible number of people in the group?

26 Nov 2017, Slot 1, Q69

Type in the answer.

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**30.** A class consists of 20 boys and 30 girls. In the mid-semester examination, the average score of the girls was 5 higher than that of the boys. In the final exam, however, the average score of the girls dropped by 3 while the average score of the entire class increased by 2. The increase in the average score of the boys is

26 Nov 2017, Slot 1, Q80

- |         |        |
|---------|--------|
| (A) 9.5 | (B) 10 |
| (C) 4.5 | (D) 6  |
-

### CAT 2017 Slot 2 - Questions 31-31

31. The average height of 22 toddlers increases by 2 inches when two of them leave this group. If the average height of these two toddlers is one-third the average height of the original 22, then the average height, in inches, of the remaining 20 toddlers is

26 Nov 2017, Slot 2, Q72

(A) 30

(B) 28

(C) 32

(D) 26

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### CAT 2007 - Questions 32-33

32. Consider the set  $S = \{2, 3, 4, \dots, 2n+1\}$ , where  $n$  is a positive integer larger than 2007. Define  $X$  as the average of the odd integers in  $S$  and  $Y$  as the average of the even integers in  $S$ . What is the value of  $X - Y$ ?

18 Nov 2007, Q1

- |               |                |
|---------------|----------------|
| (A) 0         | (B) 1          |
| (C) $(1/2)*n$ | (D) $(n+1)/2n$ |
| (E) 2008      |                |

33. Ten years ago, the ages of the members of a joint family of eight people added up to 231 years. Three years later, one member died at the age of 60 years and a child was born during the same year. After another three years, one more member died, again at 60, and a child was born during the same year. The current average age of this eight-member joint family is nearest to

18 Nov 2007, Q2

- |              |              |
|--------------|--------------|
| (A) 23 years | (B) 22 years |
| (C) 21 years | (D) 25 years |
| (E) 24 years |              |

### CAT 2002 - Questions 34-34

34. Amol was asked to calculate the arithmetic mean of 10 positive integers, each of which had 2 digits. By mistake, he interchanged the 2 digits, say  $a$  and  $b$ , in one of these 10 integers. As a result, his answer for the arithmetic mean was 1.8 more than what it should have been. Then  $|b - a|$  equals

CAT 2002, Q72

- (A) 1  
(B) 2  
(C) 3  
(D) None of these
-

### CAT 2001 - Questions 35-38

**35.** A student took five papers in an examination, where the full marks were the same for each paper. His marks in these papers were in the proportion of 6 : 7 : 8 : 9 : 10. In all papers together, the candidate obtained 60% of the total marks. Then the number of papers in which he got more than 50% marks is

CAT 2001, Q1

- (A) 2 (B) 3  
(C) 4 (D) 5

**36.** A college has raised 75% of the amount it needs for a new building by receiving an average donation of Rs. 600 from the people already solicited. The people already solicited represent 60% of the people the college will ask for donations. If the college is to raise exactly the amount needed for the new building, what should be the average donation from the remaining people to be solicited?

CAT 2001, Q13

- (A) Rs. 300 (B) Rs. 250  
(C) Rs. 400 (D) 500

**37.** Three classes X, Y and Z take an algebra test. The average score in class X is 83. The average score in class Y is 76. The average score in class Z is 85. The average score of all students in classes X and Y together is 79. The average score of all students in classes Y and Z together is 81. What is the average for all the three classes?

CAT 2001, Q22

- (A) 81 (B) 81.5  
(C) 82 (D) 84.5

**38.** A set of consecutive positive integers beginning with 1 is written on the blackboard. A student came along and erased one number. The average of the remaining numbers is  $\frac{602}{17}$ . What was the number erased?

CAT 2001, Q33

- (A) 7 (B) 8  
(C) 9 (D) None of these

39. Consider a sequence of seven consecutive integers. The average of the first five integers is  $n$ . The average of all the seven integers is:

CAT 2000, Q61

- (A)  $n$  (B)  $n+1$   
(C)  $kn$ , where  $k$  is a function of  $n$  (D)  $n + (2/7)$
-

### CAT 1997 - Questions 40-40

40. The average marks of a student in 10 papers are 80. If the highest and the lowest scores are not considered, the average is 81. If his highest score is 92, find the lowest.

CAT 1997, Q117

- (A) 55 (B) 60  
(C) 62 (D) Cannot be determined

- End of PYQ Collection -

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