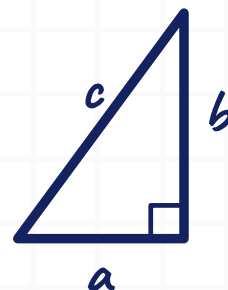
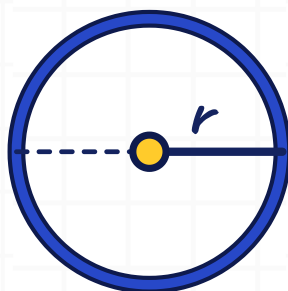


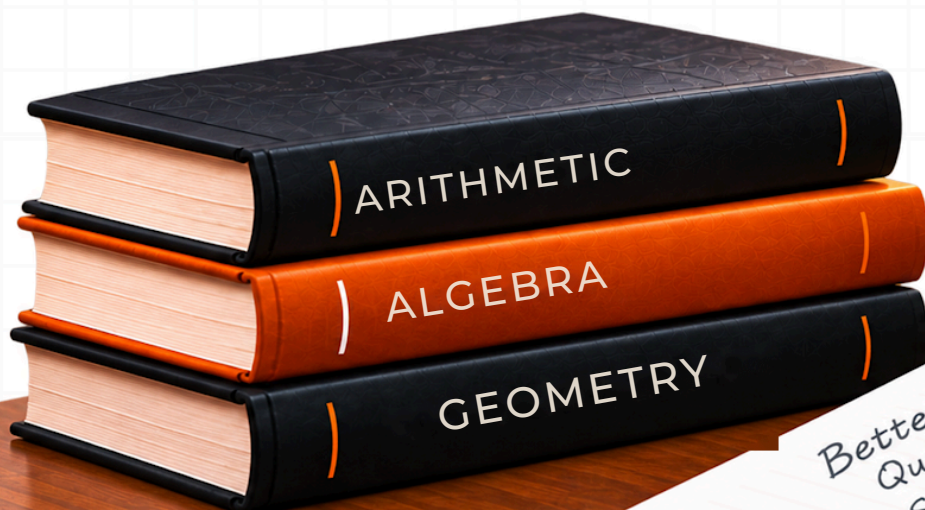
# CAT PYQ

## Ratio Proportion & Variation

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



$$D = S \times T$$



Better  
Questions  
Stronger  
Concepts  
Brighter Future

# Ratio Proportion & Variation CAT PYQ



Common Admission Test - Indian Institutes of Management

37 Questions

Quantitative Aptitude

Years: 1990-2025

## General Instructions

- (i) This collection contains **37 Quantitative Aptitude questions** classified under **Ratio Proportion & Variation**, following the supplied CD PYQ sheet.
- (ii) **Coverage:** CAT 1990-2025. Questions are grouped by their source year and sitting, with continuous numbering from **1 to 37**.
- (iii) This collection has **27 multiple choice questions (MCQs)** and **10 Type In The Answer (TITA) questions**. Read every option before choosing the answer. Enter a response for questions marked "Type in the answer."
- (iv) All required shared passages and data sets for the selected questions are included. Blue range labels refer to the question numbers **in this collection**. Read the full passage, chart, table or conditions before answering.
- (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 1 - Questions 1-3

1. In a class, there were more than 10 boys and a certain number of girls. After 40% of the girls and 60% of the boys left the class, the remaining number of girls was 8 more than the remaining number of boys. Then, the minimum possible number of students initially in the class was

30 Nov 2025, Slot 1, Q57

Type in the answer.

2. Kamala divided her investment of Rs 100000 between stocks, bonds, and gold. Her investment in bonds was 25% of her investment in gold. With annual returns of 10%, 6%, 8% on stocks, bonds, and gold, respectively, she gained a total amount of Rs 8200 in one year. The amount, in rupees, that she gained from the bonds, was

30 Nov 2025, Slot 1, Q61

Type in the answer.

3. The ratio of the number of students in the morning shift and afternoon shift of a school was 13 : 9. After 21 students moved from the morning shift to the afternoon shift, this ratio became 19 : 14. Next, some new students joined the morning and afternoon shifts in the ratio 3 : 8 and then the ratio of the number of students in the morning shift and the afternoon shift became 5 : 4. The number of new students who joined is

30 Nov 2025, Slot 1, Q65

(A) 110

(B) 88

(C) 121

(D) 99

### CAT 2025 Slot 2 - Questions 4-5

4. The ratio of expenditures of Lakshmi and Meenakshi is 2 : 3, and the ratio of income of Lakshmi to expenditure of Meenakshi is 6 : 7. If excess of income over expenditure is saved by Lakshmi and Meenakshi, and the ratio of their savings is 4 : 9, then the ratio of their incomes is

30 Nov 2025, Slot 2, Q63

- (A) 3:5 (B) 5:6  
(C) 2:1 (D) 7:8
- 

5. A certain amount of money was divided among Pinu, Meena, Rinu and Seema. Pinu received 20% of the total amount and Meena received 40% of the remaining amount. If Seema received 20% less than Pinu, the ratio of the amounts received by Pinu and Rinu is

30 Nov 2025, Slot 2, Q68

- (A) 2:1 (B) 1:2  
(C) 5:8 (D) 8:5
-

### CAT 2025 Slot 3 - Questions 6-6

6. The ratio of the number of coins in boxes A and B was 17:7. After 108 coins were shifted from box A to box B, this ratio became 37:20. The number of coins that needs to be shifted further from A to B, to make this ratio 1:1, is

30 Nov 2025, Slot 3, Q67

Type in the answer.

---

### CAT 2024 Slot 1 - Questions 7-7

7. A fruit seller has a total of 187 fruits consisting of apples, mangoes and oranges. The number of apples and mangoes are in the ratio 5 : 2. After she sells 75 apples, 26 mangoes and half of the oranges, the ratio of number of unsold apples to number of unsold oranges becomes 3 : 2. The total number of unsold fruits is

24 Nov 2024, Slot 1, Q62

Type in the answer.

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## CAT 2024 Slot 2 - Questions 8-9

8. A fruit seller has a stock of mangoes, bananas and apples with at least one fruit of each type. At the beginning of a day, the number of mangoes make up 40% of his stock. That day, he sells half of the mangoes, 96 bananas and 40% of the apples. At the end of the day, he ends up selling 50% of the fruits. The smallest possible total number of fruits in the stock at the beginning of the day is

24 Nov 2024, Slot 2, Q49

Type in the answer.

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9. When Rajesh's age was same as the present age of Garima, the ratio of their ages was 3 : 2. When Garima's age becomes the same as the present age of Rajesh, the ratio of the ages of Rajesh and Garima will become

24 Nov 2024, Slot 2, Q53

(A) 3 : 2

(B) 4 : 3

(C) 5 : 4

(D) 2 : 1

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CAT 2024 Slot 3 - Questions 10-10

10. Rajesh and Vimal own 20 hectares and 30 hectares of agricultural land, respectively, which are entirely covered by wheat and mustard crops. The cultivation area of wheat and mustard in the land owned by Vimal are in the ratio of 5 : 3. If the total cultivation area of wheat and mustard are in the ratio 11 : 9, then the ratio of cultivation area of wheat and mustard in the land owned by Rajesh is

24 Nov 2024, Slot 3, Q65

- (A) 4 : 3                      (B) 7 : 9  
(C) 3 : 7                      (D) 1 : 1

### CAT 2023 Slot 2 - Questions 11-11

11. The price of a precious stone is directly proportional to the square of its weight. Sita has a precious stone weighing 18 units. If she breaks it into four pieces with each piece having distinct integer weight, then the difference between the highest and lowest possible values of the total price of the four pieces will be 288000. Then, the price of the original precious stone is

26 Nov 2023, Slot 2, Q56

(A) 1944000

(B) 972000

(C) 1620000

(D) 1296000

---

### CAT 2023 Slot 3 - Questions 12-12

12. The number of coins collected per week by two coin-collectors A and B are in the ratio 3 : 4. If the total number of coins collected by A in 5 weeks is a multiple of 7, and the total number of coins collected by B in 3 weeks is a multiple of 24, then the minimum possible number of coins collected by A in one week is

26 Nov 2023, Slot 3, Q58

Type in the answer.

---

### CAT 2022 Slot 1 - Questions 13-14

13. In a village, the ratio of number of males to females is 5 : 4. The ratio of number of literate males to literate females is 2 : 3. The ratio of the number of illiterate males to illiterate females is 4 : 3. If 3600 males in the village are literate, then the total number of females in the village is

27 Nov 2022, Slot 1, Q45

Type in the answer.

---

14. Pinky is standing in a queue at a ticket counter. Suppose the ratio of the number of persons standing ahead of Pinky to the number of persons standing behind her in the queue is 3 : 5. If the total number of persons in the queue is less than 300, then the maximum possible number of persons standing ahead of Pinky is

27 Nov 2022, Slot 1, Q65

Type in the answer.

---

### CAT 2021 Slot 1 - Questions 15-15

15. The amount Neeta and Geeta together earn in a day equals what Sita alone earns in 6 days. The amount Sita and Neeta together earn in a day equals what Geeta alone earns in 2 days. The ratio of the daily earnings of the one who earns the most to that of the one who earns the least is

28 Nov 2021, Slot 1, Q49

(A) 3:2

(B) 11:7

(C) 11:3

(D) 7:3

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## CAT 2021 Slot 2 - Questions 16-16

16. Anil, Bobby, and Chintu jointly invest in a business and agree to share the overall profit in proportion to their investments. Anil's share of investment is 70%. His share of profit decreases by ₹ 420 if the overall profit goes down from 18% to 15%. Chintu's share of profit increases by ₹ 80 if the overall profit goes up from 15% to 17%. The amount, in INR, invested by Bobby is

28 Nov 2021, Slot 2, Q65

- |          |          |
|----------|----------|
| (A) 2000 | (B) 2400 |
| (C) 2200 | (D) 1800 |
-

### CAT 2021 Slot 3 - Questions 17-17

17. A tea shop offers tea in cups of three different sizes. The product of the prices, in INR, of three different sizes is equal to 800. The prices of the smallest size and the medium size are in the ratio 2 : 5. If the shop owner decides to increase the prices of the smallest and the medium ones by INR 6 keeping the price of the largest size unchanged, the product then changes to 3200. The sum of the original prices of three different sizes, in INR, is

28 Nov 2021, Slot 3, Q56

Type in the answer.

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### CAT 2020 Slot 2 - Questions 18-18

18. A sum of money is split among Amal, Sunil and Mita so that the ratio of the shares of Amal and Sunil is 3:2, while the ratio of the shares of Sunil and Mita is 4:5. If the difference between the largest and the smallest of these three shares is Rs.400, then Sunil's share, in rupees, is

29 Nov 2020, Slot 2, Q59

Type in the answer.

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### CAT 2019 Slot 2 - Questions 19-20

19. The salaries of Ramesh, Ganesh and Rajesh were in the ratio 6:5:7 in 2010, and in the ratio 3:4:3 in 2015. If Ramesh's salary increased by 25% during 2010-2015, then the percentage increase in Rajesh's salary during this period is closest to

24 Nov 2019, Slot 2, Q96

- |        |       |
|--------|-------|
| (A) 10 | (B) 7 |
| (C) 9  | (D) 8 |
- 

20. In an examination, Rama's score was one-twelfth of the sum of the scores of Mohan and Anjali. After a review, the score of each of them increased by 6. The revised scores of Anjali, Mohan, and Rama were in the ratio 11:10:3. Then Anjali's score exceeded Rama's score by

24 Nov 2019, Slot 2, Q100

- |        |        |
|--------|--------|
| (A) 26 | (B) 32 |
| (C) 35 | (D) 24 |
-

### CAT 2018 Slot 1 - Questions 21-21

21. Raju and Lalitha originally had marbles in the ratio 4:9. Then Lalitha gave some of her marbles to Raju. As a result, the ratio of the number of marbles with Raju to that with Lalitha became 5:6. What fraction of her original number of marbles was given by Lalitha to Raju?

25 Nov 2018, Slot 1, Q83

(A)  $\frac{1}{5}$   
(C)  $\frac{1}{4}$

(B)  $\frac{6}{19}$   
(D)  $\frac{7}{33}$

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### CAT 2017 Slot 1 - Questions 22-23

**22.** Suppose, C1, C2, C3, C4, and C5 are five companies. The profits made by C1, C2, and C3 are in the ratio  $9 : 10 : 8$  while the profits made by C2, C4, and C5 are in the ratio  $18 : 19 : 20$ . If C5 has made a profit of Rs 19 crore more than C1, then the total profit (in Rs) made by all five companies is

26 Nov 2017, Slot 1, Q74

- |               |               |
|---------------|---------------|
| (A) 438 crore | (B) 435 crore |
| (C) 348 crore | (D) 345 crore |
- 

**23.** A stall sells popcorn and chips in packets of three sizes: large, super, and jumbo. The numbers of large, super, and jumbo packets in its stock are in the ratio  $7 : 17 : 16$  for popcorn and  $6 : 15 : 14$  for chips. If the total number of popcorn packets in its stock is the same as that of chips packets, then the numbers of jumbo popcorn packets and jumbo chips packets are in the ratio

26 Nov 2017, Slot 1, Q76

- |             |             |
|-------------|-------------|
| (A) $1 : 1$ | (B) $8 : 7$ |
| (C) $4 : 3$ | (D) $6 : 5$ |
-

### CAT 2017 Slot 2 - Questions 24-24

24. If  $a, b, c$  are three positive integers such that  $a$  and  $b$  are in the ratio  $3 : 4$  while  $b$  and  $c$  are in the ratio  $2:1$ , then which one of the following is a possible value of  $(a + b + c)$ ?

26 Nov 2017, Slot 2, Q77

(A) 201

(B) 205

(C) 207

(D) 210

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## CAT 2006 - Questions 25-25

25. If  $a/b = 1/3$ ,  $b/c = 2$ ,  $c/d = 1/2$ ,  $d/e = 3$  and  $e/f = 1/4$ , then what is the value of  $abc/def$  ?

19 Nov 2006, Q51

- (A)  $3/8$  (B)  $27/8$   
(C)  $3/4$  (D)  $27/4$   
(E)  $1/4$
-

26. Three travellers are sitting around a fire, and are about to eat a meal. One of them has 5 small loaves of bread, the second has 3 small loaves of bread. The third has no food, but has 8 coins. He offers to pay for some bread. They agree to share the 8 loaves equally among the three travellers, and the third traveller will pay 8 coins for his share of the 8 loaves. All loaves were the same size. The second traveller (who had 3 loaves) suggests that he will be paid 3 coins, and that the first traveller be paid 5 coins. The first traveller says that he should get more than 5 coins. How much should the first traveller get?

CAT 2002, Q89

- (A) 5  
(B) 7  
(C) 1  
(D) None of these
-

27. Three friends, returning from a movie, stopped to eat at a restaurant. After dinner, they paid their bill and noticed a bowl of mints at the front counter. Sita took one-third of the mints, but returned four because she had a momentary pang of guilt. Fatima then took one-fourth of what was left but returned three for similar reason. Eswari then took half of the remainder but threw two back into the bowl. The bowl had only 17 mints left when the raid was over. How many mints were originally in the bowl?

CAT 2001, Q17

- (A) 38  
(B) 31  
(C) 41  
(D) None of these
-

### CAT 1999 - Questions 28-28

28. The speed of a railway engine is 42 Km per hour when no compartment is attached, and the reduction in speed is directly proportional to the square root of the number of compartments attached. If the speed of the train carried by this engine is 24 Km per hour when 9 compartments are attached, the maximum number of compartments that can be carried by the engine is:

CAT 1999, Q61

- |        |        |
|--------|--------|
| (A) 49 | (B) 48 |
| (C) 46 | (D) 47 |
-

### CAT 1998 - Questions 29-29

29. I have one-rupee coins, 50-paisa coins and 25-paisa coins. The number of coins are in the ratio 2.5 : 3 : 4. If the total amount with me is Rs. 210, find the number of one-rupee coins.

CAT 1998, Q83

(A) 90

(B) 85

(C) 100

(D) 105

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### CAT 1997 - Questions 30-30

30. The value of each of a set of coins varies as the square of its diameter, if its thickness remains constant, and it varies as the thickness, if the diameter remains constant. If the diameter of two coins are in the ratio 4 : 3, what should be the ratio of their thickness' be if the value of the first is four times that of the second?

CAT 1997, Q134

- (A) 16 : 9  
(B) 9 : 4  
(C) 9 : 16  
(D) 4 : 9
-

### CAT 1996 - Questions 31-31

31. The cost of diamond varies directly as the square of its weight. Once, this diamond broke into four pieces with weights in the ratio 1 : 2 : 3 : 4. When the pieces were sold, the merchant got Rs. 70,000 less. Find the original price of the diamond.

CAT 1996, Q117

(A) Rs. 1.4 lakh

(B) Rs. 2 lakh

(C) Rs. 1 lakh

(D) Rs. 2.1 lakh

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### CAT 1991 - Questions 32-33

**32.** Gopal went to a fruit market with certain amount of money. With this money he can buy either 50 oranges or 40 mangoes. He retains 10% of the money for taxi fare. If he buys 20 mangoes, then the maximum number of oranges he can buy is

CAT 1991, Q89

- |        |        |
|--------|--------|
| (A) 25 | (B) 20 |
| (C) 18 | (D) 6  |

**33.** An outgoing batch of students wants to gift PA system worth Rs.4200 to their school. If the teachers offer to pay 50% more than the students, and an external benefactor gives three times teachers contribution. How much should the teachers donate?

CAT 1991, Q96

- |         |          |
|---------|----------|
| (A) 600 | (B) 840  |
| (C) 900 | (D) 1200 |

## CAT 1990 - Questions 34-37

34. Gopal went to a fruit market with certain amount of money. With this money he can buy either 50 oranges or 40 mangoes. He retains 10% of the money for taxi fare. If he buys 20 mangoes, then the number of oranges he can buy is

CAT 1990, Q25

- (A) 25 (B) 18  
(C) 20 (D) None of these

### Questions 35 to 37

Ghosh Babu has a certain amount of property consisting of cash, gold coins and silver bars. The cost of a gold coin is Rs. 4000 and the cost of a silver bar is Rs. 1000. Ghosh Babu distributed his property among his daughters equally. He gave to his eldest daughter gold coins worth 20% of the total property and Rs. 25000 in cash. The second daughter was given silver bars worth 20% of the remaining property and Rs. 50000 cash. Among the third and fourth daughters, he distributed the remaining gold and silver bars equally both together accounting each for 20% of the property remaining after the previous distribution. He also gave the third and fourth daughters Rs. 25000 more than what the second daughter had received in cash.

35. The amount of property in gold and silver possessed by Ghosh Babu is

CAT 1990, Q29

- (A) 2,25,000 (B) 2,75,000  
(C) Rs. 4,25,000 (D) None of these

36. Total property of Ghosh Babu (in Rs.lakh) is

CAT 1990, Q30

- (A) 5.0 (B) 7.5  
(C) 10.0 (D) 12.5.

37. If the ratio of the gold to silver bars that Ghosh Babu had is 7:27, the number of silver bars he has is

CAT 1990, Q31

- (A) 90 (B) 60  
(C) 75 (D) 135

- End of PYQ Collection -