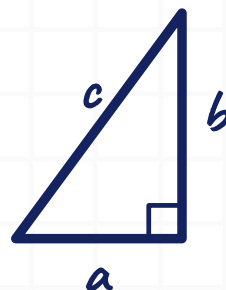
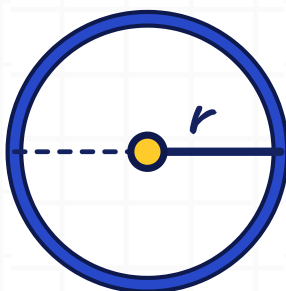


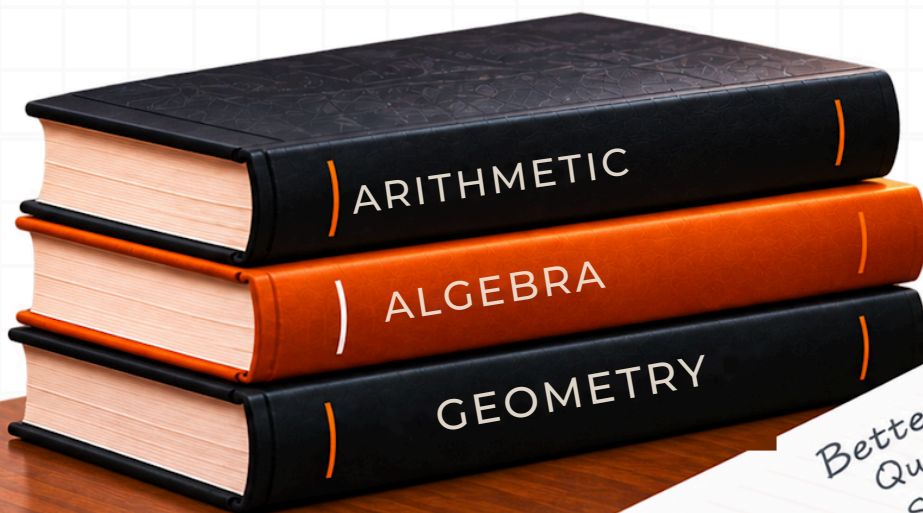
CAT PYQ

Mixtures & Alligations

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



$$D = S \times T$$



Better
Questions
Stronger
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Brighter Future

Mixtures & Alligations CAT PYQ



Common Admission Test - Indian Institutes of Management

36 Questions

Quantitative Aptitude

Years: 1996-2025

General Instructions

- (i) This collection contains **36 Quantitative Aptitude questions** classified under **Mixtures & Alligations**, following the supplied CD PYQ sheet.
- (ii) **Coverage:** CAT 1996-2025. Questions are grouped by their source year and sitting, with continuous numbering from **1 to 36**.
- (iii) This collection has **29 multiple choice questions (MCQs)** and **7 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 1 - Questions 1-1

1. A container holds 200 litres of a solution of acid and water, having 30% acid by volume. Atul replaces 20% of this solution with water, then replaces 10% of the resulting solution with acid, and finally replaces 15% of the solution thus obtained, with water. The percentage of acid by volume in the final solution obtained after these three replacements, is nearest to

30 Nov 2025, Slot 1, Q56

(A) 23

(B) 25

(C) 29

(D) 27

CAT 2025 Slot 2 - Questions 2-2

2. A mixture of coffee and cocoa, 16% of which is coffee, costs Rs 240 per kg. Another mixture of coffee and cocoa, of which 36% is coffee, costs Rs 320 per kg. If a new mixture of coffee and cocoa costs Rs 376 per kg, then the quantity, in kg, of coffee in 10 kg of this new mixture is

30 Nov 2025, Slot 2, Q65

- (A) 5
- (C) 2.5

- (B) 4
 - (D) 6
-

CAT 2025 Slot 3 - Questions 3-3

3. Vessels A and B contain 60 litres of alcohol and 60 litres of water, respectively. A certain volume is taken out from A and poured into B. After stirring, the same volume is taken out from B and poured into A. If the resultant ratio of alcohol and water in A is 15 : 4, then the volume, in litres, initially taken out from A is

30 Nov 2025, Slot 3, Q66

Type in the answer.

4. A glass is filled with milk. Two-thirds of its content is poured out and replaced with water. If this process of pouring out two-thirds the content and replacing with water is repeated three more times, then the final ratio of milk to water in the glass, is

24 Nov 2024, Slot 1, Q61

(A) 1 : 27

(B) 1 : 80

(C) 1 : 81

(D) 1 : 26

CAT 2024 Slot 2 - Questions 5-5

5. A vessel contained a certain amount of a solution of acid and water. When 2 litres of water was added to it, the new solution had 50% acid concentration. When 15 litres of acid was further added to this new solution, the final solution had 80% acid concentration. The ratio of water and acid in the original solution was

24 Nov 2024, Slot 2, Q67

(A) 5 : 3

(B) 3 : 5

(C) 5 : 4

(D) 4 : 5

CAT 2024 Slot 3 - Questions 6-6

6. A certain amount of water was poured into a 300 litre container and the remaining portion of the container was filled with milk. Then an amount of this solution was taken out from the container which was twice the volume of water that was earlier poured into it, and water was poured to refill the container again. If the resulting solution contains 72% milk, then the amount of water, in litres, that was initially poured into the container was

24 Nov 2024, Slot 3, Q60

Type in the answer.

7. A mixture P is formed by removing a certain amount of coffee from a coffee jar and replacing the same amount with cocoa powder. The same amount is again removed from mixture P and replaced with same amount of cocoa powder to form a new mixture Q. If the ratio of coffee and cocoa in the mixture Q is 16 : 9, then the ratio of cocoa in mixture P to that in mixture Q is

26 Nov 2023, Slot 1, Q52

(A) 1 : 3

(B) 1 : 2

(C) 5 : 9

(D) 4 : 9

CAT 2023 Slot 2 - Questions 8-8

8. A container has 40 liters of milk. Then, 4 liters are removed from the container and replaced with 4 liters of water. This process of replacing 4 liters of the liquid in the container with an equal volume of water is continued repeatedly. The smallest number of times of doing this process, after which the volume of milk in the container becomes less than that of water, is

26 Nov 2023, Slot 2, Q60

Type in the answer.

CAT 2023 Slot 3 - Questions 9-9

9. Anil mixes cocoa with sugar in the ratio 3 : 2 to prepare mixture A, and coffee with sugar in the ratio 7 : 3 to prepare mixture B. He combines mixtures A and B in the ratio 2 : 3 to make a new mixture C. If he mixes C with an equal amount of milk to make a drink, then the percentage of sugar in this drink will be

26 Nov 2023, Slot 3, Q55

(A) 17

(B) 16

(C) 21

(D) 24

CAT 2022 Slot 1 - Questions 10-11

10. Amal buys 110 kg of syrup and 120 kg of juice, syrup being 20% less costly than juice, per kg. He sells 10 kg of syrup at 10% profit and 20 kg of juice at 20% profit. Mixing the remaining juice and syrup, Amal sells the mixture at ₹ 308.32 per kg and makes an overall profit of 64%. Then, Amal's cost price for syrup, in rupees per kg, is

27 Nov 2022, Slot 1, Q56

Type in the answer.

11. A mixture contains lemon juice and sugar syrup in equal proportion. If a new mixture is created by adding this mixture and sugar syrup in the ratio 1 : 3, then the ratio of lemon juice and sugar syrup in the new mixture is

27 Nov 2022, Slot 1, Q59

(A) 1 : 4

(B) 1 : 5

(C) 1 : 6

(D) 1 : 7

12. There are two containers of the same volume, first container half-filled with sugar syrup and the second container half-filled with milk. Half the content of the first container is transferred to the second container, and then the half of this mixture is transferred back to the first container. Next, half the content of the first container is transferred back to the second container. Then the ratio of sugar syrup and milk in the second container is

27 Nov 2022, Slot 2, Q61

(A) 4 : 5

(B) 6 : 5

(C) 5 : 4

(D) 5 : 6

CAT 2022 Slot 3 - Questions 13-13

13. A glass contains 500 cc of milk and a cup contains 500 cc of water. From the glass, 150 cc of milk is transferred to the cup and mixed thoroughly. Next, 150 cc of this mixture is transferred from the cup to the glass. Now, the amount of water in the glass and the amount of milk in the cup are in the ratio

27 Nov 2022, Slot 3, Q52

(A) 1 : 1

(B) 10 : 13

(C) 3 : 10

(D) 10 : 3

CAT 2021 Slot 1 - Questions 14-14

14. The strength of an indigo solution in percentage is equal to the amount of indigo in grams per 100 cc of water. Two 800 cc bottles are filled with indigo solutions of strengths 33% and 17%, respectively. A part of the solution from the first bottle is thrown away and replaced by an equal volume of the solution from the second bottle. If the strength of the indigo solution in the first bottle has now changed to 21% then the volume, in cc, of the solution left in the second bottle is

28 Nov 2021, Slot 1, Q63

Type in the answer.

CAT 2021 Slot 2 - Questions 15-16

15. From a container filled with milk, 9 litres of milk are drawn and replaced with water. Next, from the same container, 9 litres are drawn and again replaced with water. If the volumes of milk and water in the container are now in the ratio of 16 : 9, then the capacity of the container, in litres, is

28 Nov 2021, Slot 2, Q52

Type in the answer.

16. A person buys tea of three different qualities at ₹ 800, ₹ 500, and ₹ 300 per kg, respectively, and the amounts bought are in the proportion 2 : 3 : 5. She mixes all the tea and sells one-sixth of the mixture at ₹ 700 per kg. The price, in INR per kg, at which she should sell the remaining tea, to make an overall profit of 50%, is

28 Nov 2021, Slot 2, Q62

(A) 653

(B) 688

(C) 692

(D) 675

17. If a certain weight of an alloy of silver and copper is mixed with 3 kg of pure silver, the resulting alloy will have 90% silver by weight. If the same weight of the initial alloy is mixed with 2 kg of another alloy which has 90% silver by weight, the resulting alloy will have 84% silver by weight. Then, the weight of the initial alloy, in kg, is

28 Nov 2021, Slot 3, Q58

- | | |
|---------|---------|
| (A) 3.5 | (B) 2.5 |
| (C) 3 | (D) 4 |
-

CAT 2020 Slot 1 - Questions 18-19

18. A solution, of volume 40 litres, has dye and water in the proportion 2 : 3. Water is added to the solution to change this proportion to 2 : 5. If one fourths of this diluted solution is taken out, how many litres of dye must be added to the remaining solution to bring the proportion back to 2 : 3?

29 Nov 2020, Slot 1, Q63

Type in the answer.

19. An alloy is prepared by mixing three metals A, B and C in the proportion 3 : 4 : 7 by volume. Weights of the same volume of the metals A, B and C are in the ratio 5 : 2 : 6. In 130 kg of the alloy, the weight, in kg, of the metal C is

29 Nov 2020, Slot 1, Q65

(A) 48

(B) 84

(C) 70

(D) 96

CAT 2020 Slot 3 - Questions 20-20

20. Two alcohol solutions, A and B, are mixed in the proportion 1:3 by volume. The volume of the mixture is then doubled by adding solution A such that the resulting mixture has 72% alcohol. If solution A has 60% alcohol, then the percentage of alcohol in solution B is

29 Nov 2020, Slot 3, Q51

- | | |
|---------|---------|
| (A) 90% | (B) 94% |
| (C) 92% | (D) 89% |
-

CAT 2019 Slot 1 - Questions 21-21

21. A chemist mixes two liquids 1 and 2. One litre of liquid 1 weighs 1 kg and one litre of liquid 2 weighs 800 gm. If half litre of the mixture weighs 480 gm, then the percentage of liquid 1 in the mixture, in terms of volume, is

24 Nov 2019, Slot 1, Q90

(A) 80

(B) 70

(C) 85

(D) 75

22. The strength of a salt solution is $p\%$ if 100 ml of the solution contains p grams of salt. Each of three vessels A, B, C contains 500 ml of salt solution of strengths 10%, 22%, and 32%, respectively. Now, 100 ml of the solution in vessel A is transferred to vessel B. Then, 100 ml of the solution in vessel B is transferred to vessel C. Finally, 100 ml of the solution in vessel C is transferred to vessel A. The strength, in percentage, of the resulting solution in vessel A is

24 Nov 2019, Slot 2, Q80

- (A) 15 (B) 13
(C) 12 (D) 14
-

CAT 2018 Slot 1 - Questions 23-24

23. Two types of tea, A and B, are mixed and then sold at Rs. 40 per kg. The profit is 10% if A and B are mixed in the ratio 3 : 2, and 5% if this ratio is 2 : 3. The cost prices, per kg, of A and B are in the ratio

25 Nov 2018, Slot 1, Q76

(A) 17 : 25

(B) 18 : 25

(C) 19 : 24

(D) 21 : 25

24. A trader sells 10 litres of a mixture of paints A and B, where the amount of B in the mixture does not exceed that of A. The cost of paint A per litre is Rs. 8 more than that of paint B. If the trader sells the entire mixture for Rs. 264 and makes a profit of 10%, then the highest possible cost of paint B, in Rs. per litre, is

25 Nov 2018, Slot 1, Q89

(A) 16

(B) 26

(C) 20

(D) 22

CAT 2018 Slot 2 - Questions 25-28

25. A 20% ethanol solution is mixed with another ethanol solution, say, S of unknown concentration in the proportion 1:3 by volume. This mixture is then mixed with an equal volume of 20% ethanol solution. If the resultant mixture is a 31.25% ethanol solution, then the unknown concentration of S is

25 Nov 2018, Slot 2, Q75

- | | |
|---------|---------|
| (A) 30% | (B) 40% |
| (C) 50% | (D) 60% |

26. A jar contains a mixture of 175 ml water and 700 ml alcohol. Gopal takes out 10% of the mixture and substitutes it by water of the same amount. The process is repeated once again. The percentage of water in the mixture is now

25 Nov 2018, Slot 2, Q91

- | | |
|----------|----------|
| (A) 30.3 | (B) 35.2 |
| (C) 25.4 | (D) 20.5 |

27. There are two drums, each containing a mixture of paints A and B. In drum 1, A and B are in the ratio 18 : 7. The mixtures from drums 1 and 2 are mixed in the ratio 3 : 4 and in this final mixture, A and B are in the ratio 13 : 7. In drum 2, then A and B were in the ratio

25 Nov 2018, Slot 2, Q95

- | | |
|---------------|---------------|
| (A) 251 : 163 | (B) 239 : 161 |
| (C) 220 : 149 | (D) 229 : 141 |

28. The strength of a salt solution is p% if 100 ml of the solution contains p grams of salt. If three salt solutions A, B, C are mixed in the proportion 1 : 2 : 3, then the resulting solution has strength 20%. If instead the proportion is 3 : 2 : 1, then the resulting solution has strength 30%. A fourth solution, D, is produced by mixing B and C in the ratio 2 : 7. The ratio of the strength of D to that of A is

25 Nov 2018, Slot 2, Q98

- | | |
|------------|-----------|
| (A) 3 : 10 | (B) 1 : 3 |
| (C) 1 : 4 | (D) 2 : 5 |

CAT 2017 Slot 2 - Questions 29-30

29. Bottle 1 contains a mixture of milk and water in 7: 2 ratio and Bottle 2 contains a mixture of milk and water in 9: 4 ratio. In what ratio of volumes should the liquids in Bottle 1 and Bottle 2 be combined to obtain a mixture of milk and water in 3:1 ratio?

26 Nov 2017, Slot 2, Q69

- (A) 27:14 (B) 27:13
(C) 27:16 (D) 27:18
-

30. Consider three mixtures — the first having water and liquid A in the ratio 1:2, the second having water and liquid B in the ratio 1:3, and the third having water and liquid C in the ratio 1:4. These three mixtures of A, B, and C, respectively, are further mixed in the proportion 4: 3: 2. Then the resulting mixture has

26 Nov 2017, Slot 2, Q80

- (A) The same amount of water and liquid B (B) The same amount of liquids B and C
(C) More water than liquid B (D) More water than liquid A
-

CAT 2004 - Questions 31-31

31. A milkman mixes 20 litres of water with 80 litres of milk. After selling one-fourth of this mixture, he adds water to replenish the quantity that he had sold. What is the current proportion of water to milk?

21 Nov 2004, Q46

(A) 2 : 3

(B) 1 : 2

(C) 1 : 3

(D) 3 : 4

CAT 2001 - Questions 32-32

32. Fresh grapes contain 90% water by weight while dried grapes contain 20% water by weight and the remaining proportion being pulp. What is the weight of dry grapes available from 20 kg of fresh grapes?

CAT 2001, Q31

- (A) 2 kg
(B) 2.4 kg
(C) 2.5 kg
(D) None of these
-

CAT 1998 - Questions 33-33

33. There are two containers: the first contains 500 ml of alcohol, while the second contains 500 ml of water. Three cups of alcohol from the first container is taken out and is mixed well in the second container. Then three cups of this mixture is taken out and is mixed in the first container. Let A denote the proportion of water in the first container and B denote the proportion of alcohol in the second container. Then,

CAT 1998, Q93

(A) $A > B$

(B) $A < B$

(C) $A = B$

(D) Cannot be determined

CAT 1997 - Questions 34-35

34. A dealer buys dry fruits at Rs. 100, Rs. 80 and Rs. 60 per kilogram. He mixes them in the ratio 3 : 4 : 5 by weight, and sells at a profit of 50%. At what price per kilogram does he sell the dry fruits?

CAT 1997, Q112

- | | |
|------------|-------------------|
| (A) Rs. 80 | (B) Rs. 100 |
| (C) Rs. 95 | (D) None of these |
-

35. Fresh grapes contain 90% water while dry grapes contain 20% water. What is the weight of dry grapes obtained from 20 kg fresh grapes?

CAT 1997, Q113

- | | |
|------------|------------|
| (A) 2 kg | (B) 2.5 kg |
| (C) 2.4 kg | (D) 10 kg |
-

CAT 1996 - Questions 36-36

36. Two liquids A and B are in the ratio 5 : 1 in container 1 and 1 : 3 in container 2. In what ratio should the contents of the two containers be mixed so as to obtain a mixture of A and B in the ratio 1 : 1?

CAT 1996, Q132

(A) 2 : 3

(B) 4 : 3

(C) 3 : 2

(D) 3 : 4

- End of PYQ Collection -
