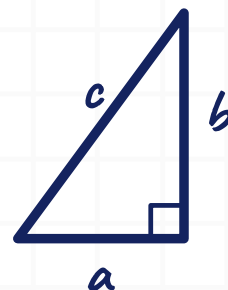
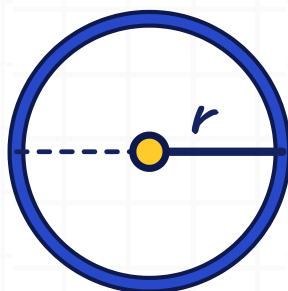


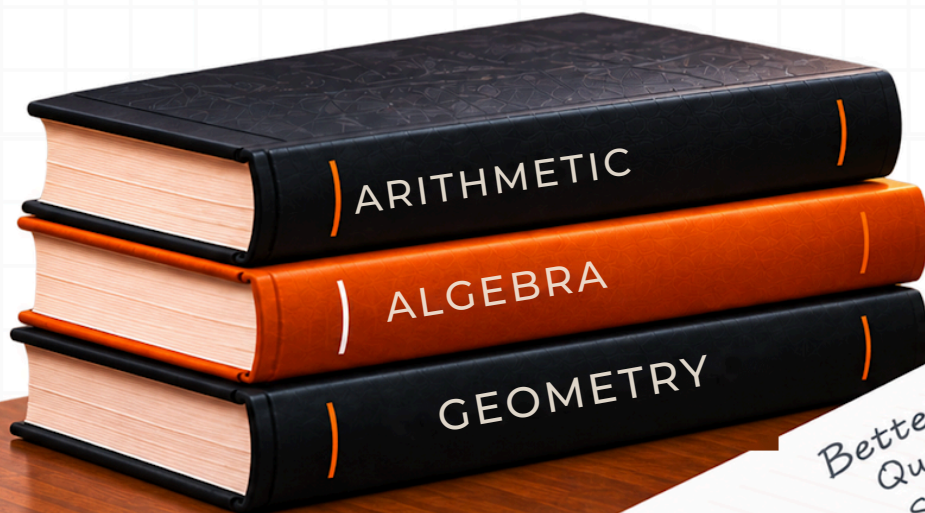
CAT PYQ

Set Theory & Venn Diagrams

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



$$D = S \times T$$



Better
Questions
Stronger
Concepts
Brighter Future

Set Theory & Venn Diagrams CAT PYQ



Common Admission Test - Indian Institutes of Management

19 Questions

Quantitative Aptitude

Years: 1991-2025

General Instructions

- (i) This collection contains **19 Quantitative Aptitude questions** classified under **Set Theory & Venn Diagrams**, following the supplied CD PYQ sheet.
- (ii) **Coverage:** CAT 1991-2025. Questions are grouped by their source year and sitting, with continuous numbering from **1 to 19**.
- (iii) This collection has **17 multiple choice questions (MCQs)** and **2 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. References distinguish the two CAT 2003 sittings.
- (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 3 - Questions 1-1

1. In a class of 150 students, 75 students chose physics, 111 students chose mathematics and 40 students chose chemistry. All students chose at least one of the three subjects and at least one student chose all three subjects. The number of students who chose both physics and chemistry is equal to the number of students who chose both chemistry and mathematics, and this is half the number of students who chose both physics and mathematics. The maximum possible number of students who chose physics but not mathematics, is

30 Nov 2025, Slot 3, Q60

(A) 30

(B) 35

(C) 40

(D) 55

CAT 2024 Slot 3 - Questions 2-2

2. In a group of 250 students, the percentage of girls was at least 44% and at most 60%. The rest of the students were boys. Each student opted for either swimming or running or both. If 50% of the boys and 80% of the girls opted for swimming while 70% of the boys and 60% of the girls opted for running, then the minimum and maximum possible number of students who opted for both swimming and running, are

24 Nov 2024, Slot 3, Q47

(A) 72 and 88, respectively

(B) 75 and 96, respectively

(C) 72 and 80, respectively

(D) 75 and 90, respectively

CAT 2022 Slot 1 - Questions 3-3

3. In a class of 100 students, 73 like coffee, 80 like tea and 52 like lemonade. It may be possible that some students do not like any of these three drinks. Then the difference between the maximum and minimum possible number of students who like all the three drinks is

27 Nov 2022, Slot 1, Q61

(A) 47

(B) 53

(C) 52

(D) 48

CAT 2020 Slot 2 - Questions 4-4

4. Students in a college have to choose at least two subjects from chemistry, mathematics and physics. The number of students choosing all three subjects is 18, choosing mathematics as one of their subjects is 23 and choosing physics as one of their subjects is 25. The smallest possible number of students who could choose chemistry as one of their subjects is

29 Nov 2020, Slot 2, Q61

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

CAT 2019 Slot 1 - Questions 5-5

5. A club has 256 members of whom 144 can play football, 123 can play tennis, and 132 can play cricket. Moreover, 58 members can play both football and tennis, 25 can play both cricket and tennis, while 63 can play both football and cricket. If every member can play at least one game, then the number of members who can play only tennis is

24 Nov 2019, Slot 1, Q83

- | | |
|--------|--------|
| (A) 38 | (B) 32 |
| (C) 45 | (D) 43 |
-

CAT 2018 Slot 1 - Questions 6-7

6. Each of 74 students in a class studies at least one of the three subjects H, E and P. Ten students study all three subjects, while twenty study H and E, but not P. Every student who studies P also studies H or E or both. If the number of students studying H equals that studying E, then the number of students studying H is

25 Nov 2018, Slot 1, Q84

Type in the answer.

7. If among 200 students, 105 like pizza and 134 like burger, then the number of students who like only burger can possibly be

25 Nov 2018, Slot 1, Q86

(A) 23

(B) 26

(C) 96

(D) 93

CAT 2018 Slot 2 - Questions 8-8

8. For two sets A and B, let $A \Delta B$ denote the set of elements which belong to A or B but not both. If $P = \{1,2,3,4\}$, $Q = \{2,3,5,6\}$, $R = \{1,3,7,8,9\}$, $S = \{2,4,9,10\}$, then the number of elements in $(P \Delta Q) \Delta (R \Delta S)$ is

25 Nov 2018, Slot 2, Q73

Type in the answer.

CAT 2007 - Questions 9-9

9. In a tournament, there are n teams $T_1, T_2, \dots, T_n$ with $n > 5$. Each team consists of k players, $k > 3$. The following pairs of teams have one player in common: T_1 & T_2 , T_2 & T_3 , ..., T_{n-1} & T_n , and T_n & T_1 . No other pair of teams has any player in common. How many players are participating in the tournament, considering all the n teams together?

18 Nov 2007, Q17

- | | |
|----------------------|----------------|
| (A) $n(k - 1)$ | (B) $k(n - 1)$ |
| (C) $n(k - 2)$ | (D) $k(n - 2)$ |
| (E) $(n - 1)(k - 1)$ | |
-

CAT 2006 - Questions 10-10

10. A survey was conducted of 100 people to find out whether they had read recent issues of Golmal, a monthly magazine. The summarized information regarding readership in 3 months is given below: Only September: 18; September but not August: 23; September and July: 8; September:28; July: 48; July and August: 10; none of the three months: 24 What is the number of surveyed people who have read exactly two consecutive issues (out of the three)?

19 Nov 2006, Q56

- | | |
|--------|--------|
| (A) 7 | (B) 9 |
| (C) 12 | (D) 14 |
| (E) 17 | |
-

11. A survey on a sample of 25 new cars being sold at a local auto dealer was conducted to see which of the three popular options — air conditioning, radio and power windows were already installed. Following were the observation of the survey: I. 15 had air conditioning II. 2 had air conditioning and power windows but no radios III. 12 had radio IV. 6 had air conditioning and radio but no power windows V. 11 had power windows VI. 4 had radio and power windows VII. 3 had all three options What is the number of cars that had none of the options?

15 Feb 2004, CAT 2003 Re-test, Q100

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

12. Twenty-seven persons attend a party. Which one of the following statements can never be true?

23 Nov 2003, CAT 2003 Original sitting, Q115

- (A) There is a person in the party who is acquainted with all the twenty-six others.
 - (B) Each person in the party has a different number of acquaintances.
 - (C) There is a person in the party who has an odd number of acquaintances.
 - (D) In the party, there is no set of three mutual acquaintances.
-

CAT 1999 - Questions 13-13

13. In a survey of political preference, 78% of those asked were in favor of at least one of the proposals: I, II and III. 50% of those asked favored proposal I, 30% favored proposal II, and 20% favored proposal III. If 5% of those asked favored all three of the proposals, what percentage of those asked favored more than one of the 3 proposals.

CAT 1999, Q66

- | | |
|--------|--------|
| (A) 10 | (B) 12 |
| (C) 17 | (D) 22 |
-

CAT 1997 - Questions 14-16

Questions 14 to 16

A survey of 200 people in a community who watched at least one of the three channels — BBC, CNN and DD — showed that 80% of the people watched DD, 22% watched BBC, and 15% watched CNN.

14. What is the maximum percentage of people who can watch all the three channels?

CAT 1997, Q122

- (A) 12.5% (B) 8.5%
(C) 15% (D) Data insufficient

15. If 5% of people watched DD and CNN, 10% watched DD and BBC, then what percentage of people watched BBC and CNN only?

CAT 1997, Q123

- (A) 2% (B) 5%
(C) 8.5% (D) Cannot be determined

16. Referring to the previous question, what percentage of people watched all the three channels?

CAT 1997, Q124

- (A) 3.5% (B) 0%
(C) 8.5% (D) Cannot be determined

CAT 1996 - Questions 17-17

17. In a locality, two-thirds of the people have cable TV, one-fifth have VCR, and one-tenth have both. What is the fraction of people having atleast one among cable -TV and VCR?

CAT 1996, Q126

(A) $\frac{19}{30}$
(C) $\frac{17}{30}$

(B) $\frac{2}{3}$
(D) $\frac{23}{30}$

CAT 1991 - Questions 18-19

18. Fifty college teachers are surveyed as to their possession of colour TV, VCR and tape recorder. Of them, 22 own colour TV, 15 own VCR and 14 own tape recorders. Nine of these college teachers own exactly two items out of colour TV, VCR and tape recorder; and, one college teacher owns all three. How many of the 50 teachers own none of the three, colour TV, VCR or tape recorder?

CAT 1991, Q66

- (A) 4 (B) 9
(C) 10 (D) 11

19. There are 3 clubs A, B & C in a town with 40, 50 & 60 members respectively. While 10 people are members of all 3 clubs, 70 are members in only one club. How many belong to exactly two clubs?

CAT 1991, Q80

- (A) 20 (B) 25
(C) 50 (D) 70

- End of PYQ Collection -