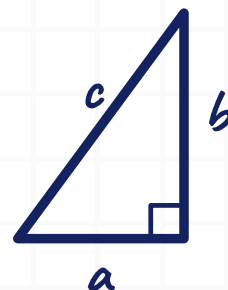
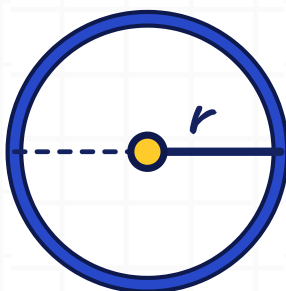


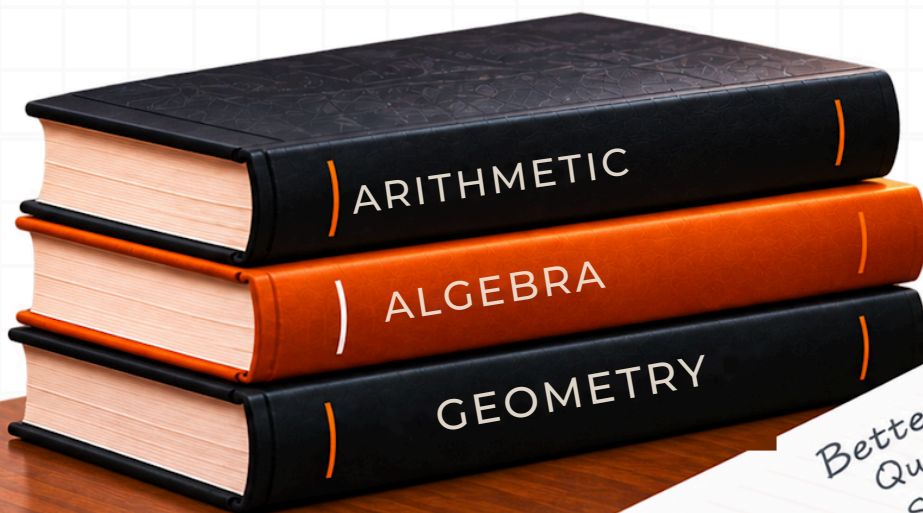
CAT PYQ

Digits & Base Systems

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



$$D = S \times T$$



Better
Questions
Stronger
Concepts
Brighter Future

Digits & Base Systems CAT PYQ



Common Admission Test - Indian Institutes of Management

17 Questions

Quantitative Aptitude

Years: 1991-2025

General Instructions

- (i) This collection contains **17 Quantitative Aptitude questions** classified under **Digits & Base Systems**, 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 17**.
- (iii) This collection has **13 multiple choice questions (MCQs)** and **4 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. 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 2 - Questions 1-1

1. The sum of digits of the number $(625)^{65} \times (128)^{36}$ is

30 Nov 2025, Slot 2, Q52

Type in the answer.

CAT 2025 Slot 3 - Questions 2-2

2. For a 4-digit number (greater than 1000), sum of the digits in the thousands, hundreds, and tens places is 15. Sum of the digits in the hundreds, tens, and units places is 16. Also, the digit in the tens place is 6 more than the digit in the units place. The difference between the largest and smallest possible value of the number is

30 Nov 2025, Slot 3, Q52

(A) 811

(B) 3289

(C) 735

(D) 4078

CAT 2021 Slot 1 - Questions 3-3

3. How many three-digit numbers are greater than 100 and increase by 198 when the three digits are arranged in the reverse order?

28 Nov 2021, Slot 1, Q55

Type in the answer.

CAT 2021 Slot 2 - Questions 4-4

4. For a 4-digit number, the sum of its digits in the thousands, hundreds and tens places is 14, the sum of its digits in the hundreds, tens and units places is 15, and the tens place digit is 4 more than the units place digit. Then the highest possible 4-digit number satisfying the above conditions is

28 Nov 2021, Slot 2, Q47

Type in the answer.

CAT 2018 Slot 2 - Questions 5-5

5. How many two-digit numbers, with a non-zero digit in the units place, are there which are more than thrice the number formed by interchanging the positions of its digits?

25 Nov 2018, Slot 2, Q72

Type in the answer.

CAT 2006 - Questions 6-6

6. When you reverse the digits of the number 13, the number increases by 18. How many other two-digit numbers increase by 18 when their digits are reversed?

19 Nov 2006, Q73

- | | |
|--------|-------|
| (A) 5 | (B) 6 |
| (C) 7 | (D) 8 |
| (E) 10 | |
-

CAT 2003 Original sitting (23 Nov 2003) - Questions 7-7

7. A positive whole number M less than 100 is represented in base 2 notation, base 3 notation, and base 5 notation. It is found that in all three cases the last digit is 1, while in exactly two out of the three cases the leading digit is 1. Then M equals

23 Nov 2003, CAT 2003 Original sitting, Q119

(A) 31

(B) 63

(C) 75

(D) 91

CAT 2002 - Questions 8-8

8. How many numbers greater than 0 and less than a million can be formed with the digits 0, 7 and 8?

CAT 2002, Q100

(A) 486

(B) 1,084

(C) 728

(D) None of these

CAT 2001 - Questions 9-10

9. In a four-digit number, the sum of the first 2 digits is equal to that of the last 2 digits. The sum of the first and last digits is equal to the third digit. Finally, the sum of the second and fourth digits is twice the sum of the other 2 digits. What is the third digit of the number?

CAT 2001, Q10

- | | |
|-------|-------|
| (A) 5 | (B) 8 |
| (C) 1 | (D) 4 |
-

10. In a number system the product of 44_{10} and 11_{10} is 3414. The number 3111 of this system, when converted to the decimal number system, becomes

CAT 2001, Q19

- | | |
|---------|----------|
| (A) 406 | (B) 1086 |
| (C) 213 | (D) 691 |
-

CAT 2000 - Questions 11-11

11. Convert the number 1982 from base 10 to base 12. The result is:

CAT 2000, Q108

- | | |
|----------|----------|
| (A) 1182 | (B) 1912 |
| (C) 1192 | (D) 1292 |
-

CAT 1999 - Questions 12-12

12. Let a, b, c be distinct digits. Consider a two digit number ' ab ' and a three digit number ' ccb ', both defined under the usual decimal number system. If $((ab)^2 = ccb)$ and $ccb > 300$ then the value of b is

CAT 1999, Q57

- | | |
|-------|-------|
| (A) 1 | (B) 0 |
| (C) 5 | (D) 6 |
-

CAT 1998 - Questions 13-15

13. $(BE)^2 = MPB$, where B, E, M and P are distinct integers. Then M =

CAT 1998, Q60

- (A) 2 (B) 3
(C) 9 (D) None of these
-

14. Five-digit numbers are formed using only 0, 1, 2, 3, 4 exactly once. What is the difference between the maximum and minimum number that can be formed?

CAT 1998, Q61

- (A) 19800 (B) 41976
(C) 32976 (D) None of these
-

15. What is the digit in the unit's place of 2^{51} ?

CAT 1998, Q92

- (A) 2 (B) 8
(C) 1 (D) 4
-

CAT 1991 - Questions 16-17

16. A third standard teacher gave a simple multiplication exercise to the kids. But one kid reversed the digits of both the numbers and carried out the multiplication and found that the product was exactly the same as the one expected by the teacher. Only one of the following pairs of numbers will fit in the description of the exercise. Which one is that?

CAT 1991, Q84

(A) 14, 22

(B) 13, 62

(C) 19, 33

(D) 42, 28

17. If $8 + 12 = 2$, $7 + 14 = 3$ then $10 + 18 = ?$

CAT 1991, Q99

(A) 10

(B) 4

(C) 6

(D) 18

- End of PYQ Collection -