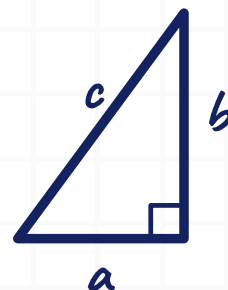
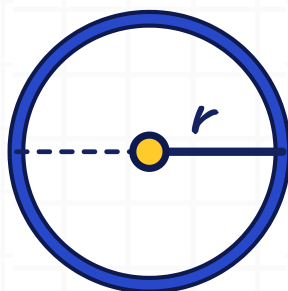


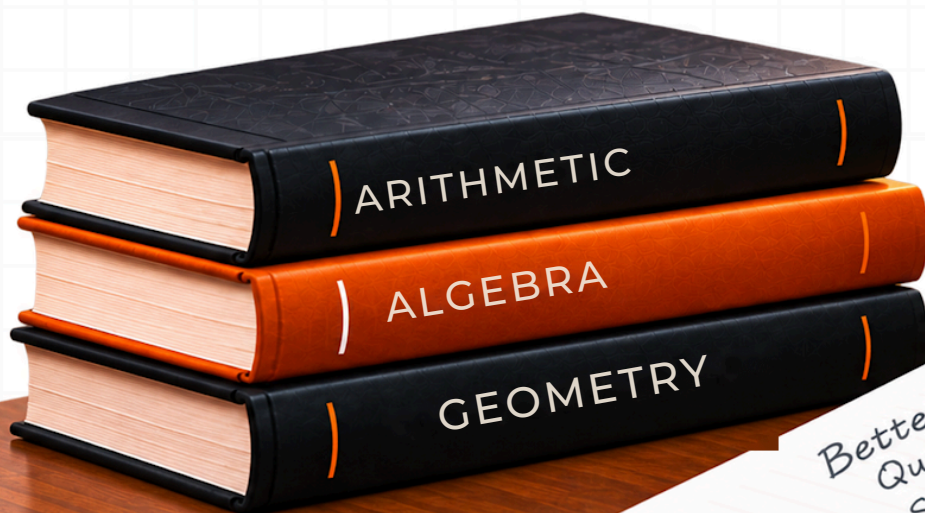
CAT PYQ

Divisibility

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



$$D = S \times T$$



Better
Questions
Stronger
Concepts
Brighter Future

18 Questions

Quantitative Aptitude

Years: 1991-2023

General Instructions

- (i) This collection contains **18 Quantitative Aptitude questions** classified under **Divisibility**, following the supplied CD PYQ sheet.
- (ii) **Coverage:** CAT 1991-2023. Questions are grouped by their source year and sitting, with continuous numbering from **1 to 18**.
- (iii) This collection has **15 multiple choice questions (MCQs)** and **3 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 2023 Slot 2 - Questions 1-1

1. For any natural numbers m , n , and k , such that k divides both $m + 2n$ and $3m + 4n$, k must be a common divisor of

26 Nov 2023, Slot 2, Q47

(A) m and n

(B) $2m$ and $3n$

(C) m and $2n$

(D) $2m$ and n

CAT 2020 Slot 3 - Questions 2-2

2. How many of the integers 1, 2, ... , 120, are divisible by none of 2, 5 and 7?

29 Nov 2020, Slot 3, Q69

(A) 42

(B) 41

(C) 40

(D) 43

CAT 2019 Slot 2 - Questions 3-6

3. What is the largest positive integer n such that $\frac{n^2 + 7n + 12}{n^2 - n - 12}$ is also a positive integer?

24 Nov 2019, Slot 2, Q69

- (A) 6 (B) 16
(C) 8 (D) 12
-

4. How many pairs (m, n) of positive integers satisfy the equation $m^2 + 105 = n^2$?

24 Nov 2019, Slot 2, Q70

Type in the answer.

5. How many factors of $2^4 \times 3^5 \times 10^4$ are perfect squares which are greater than 1?

24 Nov 2019, Slot 2, Q84

Type in the answer.

6. In a six-digit number, the sixth, that is, the rightmost, digit is the sum of the first three digits, the fifth digit is the sum of first two digits, the third digit is equal to the first digit, the second digit is twice the first digit and the fourth digit is the sum of fifth and sixth digits. Then, the largest possible value of the fourth digit is

24 Nov 2019, Slot 2, Q85

Type in the answer.

CAT 2007 - Questions 7-7

7. How many pairs of positive integers m, n satisfy $1/m + 4/n = 1/12$, where n is an odd integer less than 60?

18 Nov 2007, Q6

- | | |
|-------|-------|
| (A) 6 | (B) 4 |
| (C) 7 | (D) 5 |
| (E) 3 | |
-

CAT 2005 - Questions 8-9

8. The digits of a three-digit number A are written in the reverse order to form another three-digit number B. If $B > A$ and $B-A$ is perfectly divisible by 7, then which of the following is necessarily true?

20 Nov 2005, Q13

(A) $100 < A < 299$

(B) $106 < A < 305$

(C) $112 < A < 311$

(D) $118 < A < 317$

9. Let S be a set of positive integers such that every element n of S satisfies the conditions A. $1000 \leq n \leq 1200$ B. every digit in n is odd Then how many elements of S are divisible by 3?

20 Nov 2005, Q25

(A) 9

(B) 10

(C) 11

(D) 12

10. Let a, b, c, d and e be integers such that $a = 6b = 12c$, and $2b = 9d = 12e$. Then which of the following pairs contains a number that is not an integer?

15 Feb 2004, CAT 2003 Re-test, Q92

(A) $\left(\frac{a}{27}, \frac{b}{e}\right)$

(B) $\left(\frac{a}{36}, \frac{c}{e}\right)$

(C) $\left(\frac{a}{12}, \frac{bd}{18}\right)$

(D) $\left(\frac{a}{6}, \frac{c}{d}\right)$

CAT 2003 Original sitting (23 Nov 2003) - Questions 11-11

11. How many even integers n , where $100 \leq n \leq 200$, are divisible neither by seven nor by nine?

23 Nov 2003, CAT 2003 Original sitting, Q118

- | | |
|--------|--------|
| (A) 40 | (B) 37 |
| (C) 39 | (D) 38 |
-

CAT 2002 - Questions 12-12

12. $7^{6n} - 6^{6n}$, where n is an integer > 0 , is divisible by

CAT 2002, Q93

(A) 13

(B) 127

(C) 559

(D) All of these

CAT 2000 - Questions 13-14

13. Let S be the set of integers x such that: 1) $100 \leq x \leq 200$ 2) x is odd 3) x is divisible by 3 but not by 7. How many elements does S contain?

CAT 2000, Q64

- | | |
|--------|--------|
| (A) 16 | (B) 12 |
| (C) 11 | (D) 13 |
-

14. Let $N = 55^3 + 17^3 - 72^3$. N is divisible by:

CAT 2000, Q94

- | | |
|-------------------|-------------------|
| (A) both 7 and 13 | (B) both 3 and 13 |
| (C) both 17 and 7 | (D) both 3 and 17 |
-

CAT 1998 - Questions 15-15

15. How many five-digit numbers can be formed using the digits 2, 3, 8, 7, 5 exactly once such that the number is divisible by 125?

CAT 1998, Q81

- | | |
|-------|-------|
| (A) 0 | (B) 1 |
| (C) 4 | (D) 3 |
-

CAT 1997 - Questions 16-16

16. If m and n are integers divisible by 5, which of the following is not necessarily true?

CAT 1997, Q120

- (A) $m - n$ is divisible by 5
(B) $m^2 - n^2$ is divisible by 25
(C) $m + n$ is divisible by 10
(D) None of these
-

CAT 1996 - Questions 17-17

17. If a number 774958A96B is to be divisible by 8 and 9, the respective values of A and B will be

CAT 1996, Q106

(A) 7 and 8

(B) 8 and 0

(C) 5 and 8

(D) None of these

CAT 1991 - Questions 18-18

18. If x is a positive integer such that $2x + 12$ is perfectly divisible by x , then the number of possible values of x is

CAT 1991, Q94

(A) 2

(B) 5

(C) 6

(D) 12

- End of PYQ Collection -
