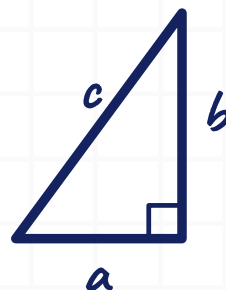
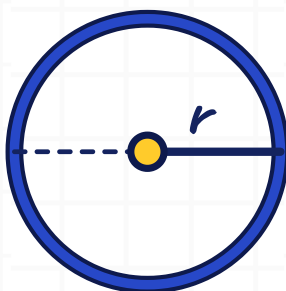


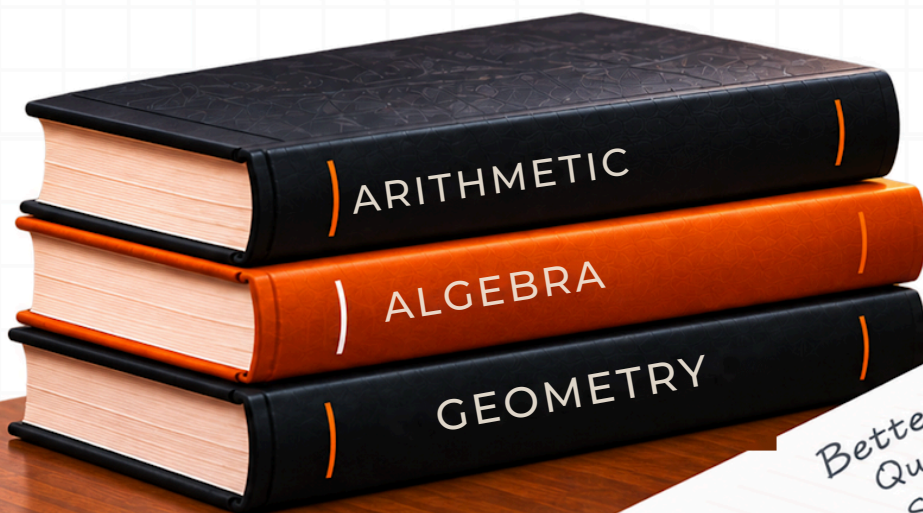
CAT PYQ

Trigonometry

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



$$D = S \times T$$



Better
Questions
Stronger
Concepts
Brighter Future

5 Questions

Quantitative Aptitude

Years: 2003-2022

General Instructions

- (i) This collection contains **5 Quantitative Aptitude questions** classified under **Trigonometry**, following the supplied CD PYQ sheet.
- (ii) **Coverage:** CAT 2003-2022. Questions are grouped by their source year and sitting, with continuous numbering from **1 to 5**.
- (iii) This collection has **5 multiple choice questions (MCQs)**. Read every option before choosing 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 2022 Slot 2 - Questions 1-1

1. In triangle ABC, altitudes AD and BE are drawn to the corresponding bases. If $\angle BAC = 45^\circ$ and $\angle ABC = \theta$, then $\frac{AD}{BE}$ equals

27 Nov 2022, Slot 2, Q49

(A) $\sqrt{2} \cos \theta$

(B) $\frac{(\sin \theta + \cos \theta)}{\sqrt{2}}$

(C) 1

(D) $\sqrt{2} \sin \theta$

CAT 2019 Slot 2 - Questions 2-2

2. Let a, b, x, y be real numbers such that $a^2 + b^2 = 25$, $x^2 + y^2 = 169$, and $ax + by = 65$. If $k = ay - bx$, then

24 Nov 2019, Slot 2, Q93

(A) $0 < k \leq \frac{5}{13}$

(B) $k > \frac{5}{13}$

(C) $k = \frac{5}{13}$

(D) $k = 0$

CAT 2008 - Questions 3-3

3. Rahim plans to drive from city A to station C, at the speed of 70 km per hour, to catch a train arriving there from B. He must reach C at least 15 minutes before the arrival of the train. The train leaves B, located 500 km south of A, at 8:00 am and travels at a speed of 50 km per hour. It is known that C is located between west and northwest of B, with BC at 60° to AB. Also, C is located between south and southwest of A with AC at 30° to AB. The latest time by which Rahim must leave A and still catch the train is closest to

16 Nov 2008, Q22

- | | |
|---------------|---------------|
| (A) 6 : 15 am | (B) 6 : 30 am |
| (C) 6 :45 am | (D) 7 : 00 am |
| (E) 7 : 15 am | |
-

4. A car is being driven, in a straight line and at a uniform speed, towards the base of a vertical tower. The top of the tower is observed from the car and, in the process, it takes 10 min for the angle of elevation to change from 45° to 60° . After how much more time will this car reach the base of the tower?

15 Feb 2004, CAT 2003 Re-test, Q62

(A) $5(\sqrt{3} + 1)$

(B) $6(\sqrt{3} + \sqrt{2})$

(C) $7(\sqrt{3} - 1)$

(D) $8(\sqrt{3} - 2)$

5. A vertical tower OP stands at the center O of a square ABCD. Let h and b denote the length OP and AB respectively. Suppose $\angle APB = 60^\circ$ then the relationship between h and b can be expressed as

23 Nov 2003, CAT 2003 Original sitting, Q135

(A) $2b^2 = h^2$

(B) $2h^2 = b^2$

(C) $3b^2 = 2h^2$

(D) $3h^2 = 2b^2$

- End of PYQ Collection -
