

CAT Geometry Questions and Answers

Question 1: Let ABCD be a parallelogram such that the coordinates of its three vertices A, B, C are (1, 1), (3, 4) and (-2, 8), respectively. Then the coordinates of the vertex D are:

- a) (0, 11)
- b) (4, 5)
- c) (-3, 4)
- d) (-4, 5)

Question 2: All the vertices of a rectangle lie on a circle of Radius R. If the perimeter of the Rectangle is P, then the area of rectangle is:

- a) $P^2/16 - R^2$
- b) $P^2/8 - 2R^2$
- c) $P^2/2 - 2PR$
- d) $P^2/8 - R^2/2$

Question 3: Let ABC be a right-angled isosceles triangle with hypotenuse BC. Let BQC be a semi-circle away from A, with diameter BC. Let BPC be an arc of a circle centered at A and lying between BC and BQC. If AB has length 6 cm then the area, in sq cm, of the region enclosed by BPC and BQC is:

- a) $9\pi - 18$
- b) 18
- c) 9π
- d) 9

Question 4: ABCD is a trapezium in which AB is parallel to CD. The sides AD and BC when extended, intersect at point E.

If AB = 2 cm, CD = 1 cm, and perimeter of ABCD is 6 cm, then the perimeter in cm, of Triangle AEB is:

- a) 10
- b) 9
- c) 8
- d) 7

Question 5: Corners are cut off from an equilateral triangle T to produce a regular hexagon H. Then, the ratio of the area of H to the area of T is:

- a) 4:5
- b) 5:6
- c) 3:4
- d) 2:3

Question 6: In a circle of radius 11 cm, CD is a diameter and AB is a chord of length 20.5 cm. If AB and CD intersect at a point E has length 7 cm, then the difference of the lengths of BE and AE, in cm, is:

- a) 1.5

- b) 3.5
- c) 0.5
- d) 2.5

TITA Questions:

Question 7: A Trapezium ABCD has side AD parallel to BC. $\angle BAD = 90^\circ$, $BC = 3$ cm and $AD = 8$ cm. If the perimeter of this trapezium is 36 cm, then its area in sq. cm, is:

Possible answer 66.

Question 8: Let AB, CD, EF, GH and JK be five diameters of a circle with centre at O. In how many ways can three points be chosen out of A, B, C, D, E, F, G, H, J, K and O so as to form a triangle?

Possible answer: 160.

Question 9: Let ABC be a right-angled triangle with BC as the hypotenuse. Lengths of AB and AC are 15 km and 20 km respectively. The minimum possible time, in minutes, required to reach the hypotenuse from A at a speed of 30 km per hour is:

Possible answer: 24

Question 10: A ball of diameter 4 cm is kept on top of a hollow cylinder standing vertically. The height of the cylinder is 3 cm, while its volume is $9\pi \text{ cm}^3$. Then the vertical distance in cm, of the topmost point of the ball from the base of the cylinder is:

Possible answer: 6

