# CBSE Previous Year Question Paper Class 10 Maths 2017

Time Allowed: 3 hours                                        Maximum Marks: 80

General Instructions:

- All questions are compulsory.
- This question paper consists of 30 questions divided into four sections- A, B, C and D.
- Section A contains 6 questions of 1 mark each, Section B contains 6 questions of 2 marks each, Section C contains 10 questions of 3 marks each and Section D contains 8 questions of 4 marks each.
- There is no overall choice. However, an internal choice has been provided in two questions of 1 mark each, two questions of 2 marks each, four questions of 3 marks each and three questions of 4 marks each. You have to attempt only one of the alternative in all such questions.
- Use of calculators is not permitted.

**Section – A**

Question 1.
What is the common difference of an A.P. in which $a_{21} - a_7 = 84$?                    [1]

Question 2.
If the angle between two tangents drawn from an external point P to a circle of radius a and centre O, is 60°, then find the length of OP.                    [1]

Question 3.
If a tower 30 m high, casts a shadow $10\sqrt{3}$ m long on the ground, then what is the angle of elevation of the sun?                    [1]

Question 4.
The probability of selecting a rotten apple randomly from a heap of 900 apples is 0-18. What is the number of rotten apples in the heap?                    [1]

**Section – B**

Question 5.
Find the value of p, for which one root of the quadratic equation $px^2 - 14x + 8 = 0$ is 6 times the other.                    [2]

Question 6.
Which term of the progression 20, $19\frac{1}{4}, 18\frac{1}{2}, 17\frac{3}{4},$ … is the first negative term?                    [2]

Question 7.
Prove that the tangents drawn at the endpoints of a chord of a circle make equal angles with the chord.                    [2]

Question 8.
A circle touches all the four sides of a quadrilateral ABCD. Prove that AB + CD = BC + DA [2]

Question 9.
A line intersects the y-axis and x-axis at the points P and Q respectively. If (2, -5) is the mid-point of PQ, then find the coordinates of P and Q. [2]

Question 10.
If the distances of P(x, y), from A(5, 1) and B(-1, 5) are equal, then prove that 3x = 2y. [2]

## Section – C

Question 11.
If ad ≠ bc, then prove that the equation $(a^2 + b^2) x^2 + 2 (ac + bd) x + (c^2 + d^2) = 0$ has no real roots. [3]

Question 12.
The first term of an A.E is 5, the last term is 45 and the sum of all its terms is 400. Find the number of terms and the common difference of the A.P. [3]
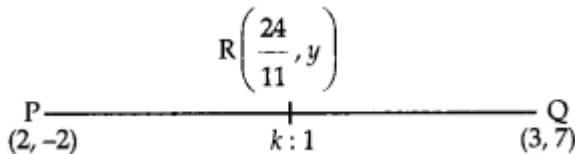
Question 13.
On a straight line passing through the foot of a tower, two points C and D are at distances of 4 m and 16 m from the foot respectively. If the angles of elevation from C and D of the top of the tower are complementary, then find the height of the tower. [3]

Question 14.
A bag contains 15 white and some black balls. If the probability of drawing a black ball from the bag is thrice that of drawing a white ball, find the number of black balls in the bag. [3]
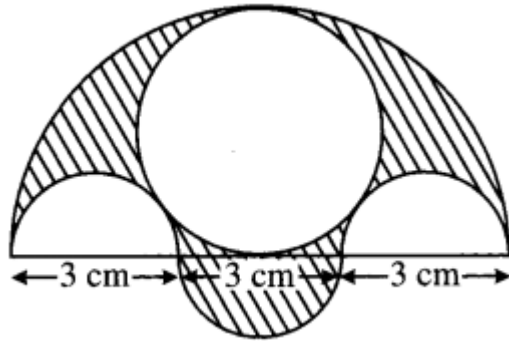
Question 15.
In what ratio does the point (2411, y) the line segment joining the points P(2, -2) and Q(3, 7) ? Also, find the value of y. [3]
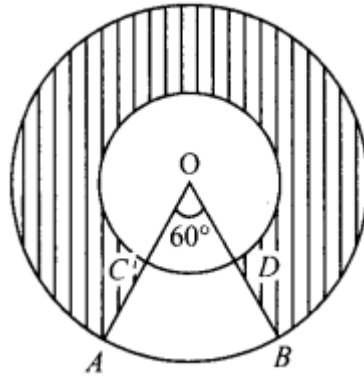


Question 16.
Three semicircles each of diameter 3 cm, a circle of diameter 4.5 cm and a semi-circle of radius 4.5 cm are drawn in the given figure. Find the area of the shaded region. [3]

Question 17.
In the given figure, two concentric circles with centre O have radii 21 cm and 42 cm. If ∠AOB = 60°, find the area of the shaded region. [Use π = 22/7]



Question 18.
Water in a canal, 5·4 m wide and 1.8 m deep, is flowing with a speed of 25 km/hour. How much area can it irrigate in 40 minutes, if 10 cm of standing water is required for irrigation? [3]

Question 19.
The slant height of a frustum of a cone is 4 cm and the perimeters of its circular ends are 18 cm and 6 cm. Find the curved surface area of the frustum. [3]

Question 20.
The dimensions of a solid iron cuboid are 4.4 m × 2.6 m × 1.0 m. It is melted and recast into hollow cylindrical pipe of 30 cm inner radius and thickness 5 cm. Find the length of the pipe. [3]

**Section – D**

Question 21.
Solve for x:

$$\frac{1}{x+1} + \frac{3}{5x+1} = \frac{5}{x+4}, x \neq -1, -\frac{1}{5}, -4 \quad [4]$$

Question 22.

Two taps running together can fill a tank in $3\frac{1}{13}$ hours. If one tap takes 3 hours more than the other to fill the tank, then how much time will each tap take to fill the tank ? [4]
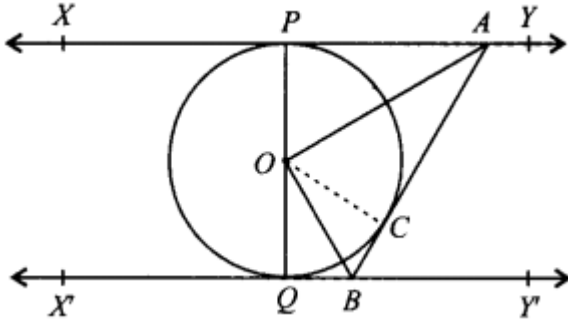
Question 23.

If the ratio of the sum of the first n terms of two A.P.S is (7n + 1) : (4n + 27), then find the ratio of their 9th terms. [4]

Question 24.

Prove that the lengths of two tangents drawn from an external point to a circle are equal. [4]

Question 25.

In the given figure, XY and XY are two parallel tangents to a circle with centre O and another tangent AB with a point of contact C, is intersecting XY at A and X'Y' at B. Prove that ∠AOB = 90°. [4]



Question 26.

Construct a triangle ABC with side BC = 7 cm, ∠B = 45°, ∠A = 105°. Then construct another triangle whose sides are $\frac{3}{4}$s times the corresponding sides of the ∆ABC. [4]

Question 27.

An aeroplane is flying at a height of 300 m above the ground. Flying at this height, the angles of depression from the aeroplane of two points on both banks of a river in opposite directions are 45° and 60° respectively. Find the width of the river. [Use √3 = 1.732] [4]

Question 28.

If the points A(k + 1, 2k), B(3k, 2k + 3) and C(5k − 1, 5k) are collinear, then find the value of k. [4]

Question 29.

Two different dice are thrown together. Find the probability that the numbers obtained have
(i) even sum, and
(ii) even product. [4]

Question 30.

In the given figure, ABCD is a rectangle of dimensions 21 cm × 14 cm. A semicircle is drawn with BC as diameter. Find the area and the perimeter of the shaded region in the figure. [4]

A ———— 21 cm ———— B

14 cm