

- Please check this paper contains 3 printed pages
- Code number given on the right hand side of the question paper should be written on the title page of the answer book by the candidate
- Please check that this question paper contains 31 questions

SUMMATIVE ASSESSMENT – II

MATHEMATICS – SAMPLE PAPER -2017

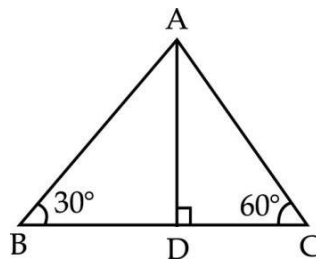
General Instructions

- All questions are compulsory
- The question paper consist of 31 questions divided in to four sections – A , B , C and D
- Section A contains 4 questions of one mark each .Section B contains 6 questions of 2 marks each section C contains 10 questions of 3 marks and Section D contains 11 questions of four marks each
- Use of calculator is not permitted

SECTION – A

(Question numbers 1 to 4 carry 1 mark each)

1. In the given figure, if $AD = 7\sqrt{3}$ m, then BC is equal to :

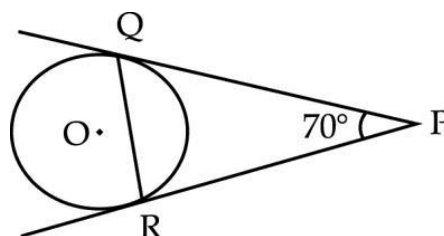


- Find the sum of first five positive integers divisible by 6 .
- Find the probability of getting a perfect square number from the numbers 1 to 10
- If PA and PB are two tangents from a point P to a circle with centre O and are inclined to each other at an angle of 80, then find $\angle POA$

SECTION – B

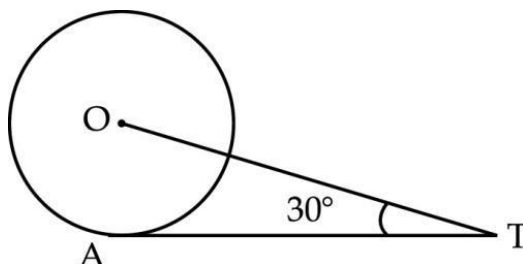
(Question numbers 5 to 10 carry 2 marks each)

- Find the values of p for which the equation has two equal roots : $(p-12)x^2 + 2(p-12)x + 2 = 0$
- Determine k so that $k+2$, $4k-6$ and $3k-2$ are the three consecutive terms of an A.P.
- In the given figure, PQ and PR are tangents to the circle with centre O such that $\angle QPR = 70^\circ$, then find $\angle OQR$



8. If two vertices of a parallelogram are (3, 2) and (-1, 0) and the diagonals intersect at (2, -5) then find the other two vertices .

9. In the given figure, AT is a tangent to the circle with centre O such that OT is 4cm and $\angle OTA = 30^\circ$, then find AT (in cm)



10. Find the value of a, if the points P(1, 5), Q(a, 1) and R(4, 11) are collinear

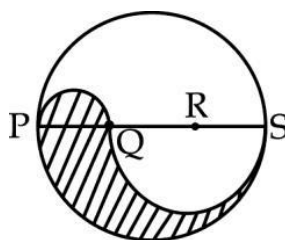
SECTION C

(Question numbers 11 to 20 carry 3 marks each)

11. Solve for x : $ax^2 - (4a^2 - 3b)x - 12ab = 0$

12. Find the sum of all two digit natural numbers which when divided by 3 yield 1 as remainder.

13. In given figure, PQRS is diameter of a circle of radius 6cm. The lengths PQ, QR and RS are equal. Semicircles are drawn on PQ and QS as diameters. Find the area of the shaded region and also find its perimeter.



14. Find the volume of the largest right circular cone that can be cut out of a cube whose edge is 9cm (Use $\pi = \frac{22}{7}$)

15. The area between two concentric circles is 346.5 sq. cm, and the circumference of the inner circle is 88 cm. Calculate the radius of the outer circle. (Use $\pi = \frac{22}{7}$)

16. All the face cards of spades are removed from a well shuffled pack of 52 cards. A card is then drawn at random from the remaining pack. Find the probability of getting (i) a black card (ii) a queen

17. A cone, a hemisphere and a cylinder stand on equal bases and have the same height. Show that their volumes are in the ratio 1 : 2 : 3.

18. Prove that the diagonals of a rectangle with vertices (0, 0), (a, 0), (a, b) and (0, b) bisect each other and are equal.

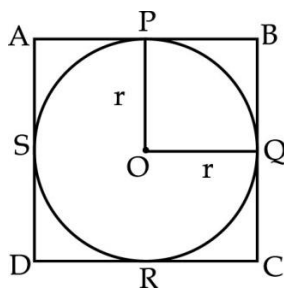
19. The angles of elevation of the top of a tower from two points at a distance of a and b ($a > b$) metres away from the base of the tower and in the same straight line with it are 30° and 60° respectively. Find the height of the tower.

20. If the radius of the base of a right circular cylinder is halved, keeping the height same find the ratio of the volume of the reduced cylinder to that of the original cylinder.

SECTION D

(Question numbers 11 to 20 carry 3 marks each)

21. A motorboat whose speed is 18 km/hr in still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream.
22. How many terms of the A.P. : $20, 19\frac{1}{3}, 18\frac{2}{3}, \dots$ should be taken so that their sum is 300. Explain the double answer.
23. Prove that the tangent to a circle is perpendicular to the radius through the point of contact.
24. Draw a triangle ABC with side BC= 8cm, $\angle B = 45^\circ, \angle C = 30^\circ$. Then, construct a triangle similar to ΔABC such that its sides are $\frac{3}{4}$ of the corresponding sides of ΔABC .
25. From the top of a tower the angle of depression of an object on the horizontal ground is found to be 60° . On descending 20 m vertically downwards from the top of the tower, the angle of depression of the object is found to be 30° . Find the height of the tower.
26. Cards marked with numbers 13, 14, 15,, 60 are placed in a box and mixed thoroughly. One card is drawn at random from the box. Find the probability that the sum of digits on the card drawn is 5.
27. A bucket made up of a metallic sheet is in the form of a frustum of a cone of height 16 cm with radii of its lower and upper ends as 8 cm and 20 cm respectively. Find the cost of the bucket if the cost of metal sheet used is Rs. 15 per 100 cm^2 . (use $\pi = 3.14$)
28. Find the area of the triangle formed by joining the mid-points of the sides of the triangle ABC whose vertices are A(0, -1), B(2, 1), C(0, 3). Find the ratio of this area to the area of the given triangle ABC.
29. A gulabjamun when completely ready for eating contains sugar syrup up to about 30% of its volume. Find how much syrup would be found in 45 gulabjamuns shaped like a cylinder with 2 hemispherical ends, if the total length of each gulabjamunis 5 cm and its diameter is 2.8 cm.
30. A man divided Rs 6500 equally among a certain number of old persons in an old age home. Had there been 15 more persons, each would have got Rs 30 less. Find the original number of persons. What values are inculcated instudents through such activities?
- 31.



In the figure a circle is inscribed in a quadrilateral ABCD in which $\angle B = 90^\circ$. If AD = 23 cm, AB = 29 cm and DS = 5 cm, find the radius of the in circle.