

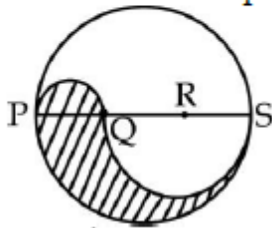


# INDIAN SCHOOL AL WADI AL KABIR

DEPT. OF MATHEMATICS 2015-2016, CLASS - X

## WINTER HOLIDAY HOME WORKS

1. Find the roots of the quadratic equation :  $\sqrt{7}y^2 - 6y - 13\sqrt{7} = 0$ .
2. Is 68 a term of the A.P : 7, 10, 13, ..... ?
3. If the perimeter of a sector of a circle of radius 5.7m is 27.2m, then find the area of the sector.
4. A solid metallic sphere of diameter 21cm is melted and recasted into a number of smaller cones, each of diameter 7cm and height 3cm. Find the number of cones so formed.
5. Solve for  $x$  :  $9x^2 - 9(a+b)x + [2a^2 + 5ab + 2b^2] = 0$ .
6. An aeroplane left 40 minutes late due to heavy rains and in order to reach its destination, 1600km away in time, it had to increase its speed by 400 km/hr from its original speed. Find the original speed of the plane.
7. Find the sum of all natural numbers from 100 to 200 which are divisible by 4.
8. 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.



9. A hemispherical tank full of water is emptied at the rate of  $7\frac{1}{7}$  liters per second. How much time will it take to make the tank half empty, if the tank is 3m in radius ?  
(use  $\pi = \frac{22}{7}$ )
10. A tree is broken by the wind. The top struck the ground at an angle of  $30^\circ$  at a distance of 30m from the foot. Find the whole height of the tree.
11. The time taken by Ram to cover 150km in one direction was 150 minutes more than the time in the return journey. If he returned at a speed of 10km/hr more than the speed of going. What was the speed per hour in each direction ?

12. Solve for  $x$ ,  $12abx^2 - (9a^2 + 8b^2)x + 6ab = 0$ .
13. In a flower bed, there are 23 rose plants in the first row, 21 in the second, 19 in the third and so on. There are 5 rose plants in the last row. How many rows are there in the flower bed? Also find the total number of plants.
14. If the diameters of the circular ends of a bucket 28cm high are 56cm and 14cm, determine its curved surface area and the total surface area. (Use  $\pi = \frac{22}{7}$ ).
15. A cone of radius 10cm is divided into two parts by drawing a plane through the mid-point of its axis. Compare the volumes of the two parts.
16. Find the roots of the quadratic equation:  $\frac{1}{3}x^2 - \sqrt{11}x + 1 = 0$
17. Which term of A.P. : 21, 18, 15, ..... is zero?
18. Solve for  $x$ :  $\frac{x+1}{x-1} + \frac{x-2}{x+2} = 3$ ;  $x \neq 1, -2$
19. How many terms of the A.P. : -15, -13, -11, .... are needed to make the sum -55? Explain the reason for double answer?
20. A shopkeeper buys a number of packets of biscuits for Rs. 80. If he had bought 4 more packets for the same amount, each packet would have cost Re. 1 less. How many packets did he buy?
21. The difference of two number is 5 and the difference of their reciprocals is  $\frac{1}{10}$ . Find the numbers.
22. Find the sum of all numbers between 250 and 1000 which are exactly divisible by 3.
23. A decorative block is made of two solids - a cube and a hemisphere. The base of the block is the cube with edge of 7 cm and the hemisphere attached on the top has a diameter of 4.9 cm. If the block is to be painted, find the total area to be painted.
24. A godown is in the form as shown in the figure. The vertical cross-section parallel to the width side of the building is a rectangle of size 7 m  $\times$  3 m mounted by a semicircle of radius 3.5 m. The inner measurements of the cubical portion are 10 m  $\times$  7 m  $\times$  3 m. Find the volume of the godown.