Rajasthan Board Class 10 Maths Important Questions

1) Write the number of circles passing through three non-collinear points.

2) Find the probability of getting a prime number on throwing the die once.

3) What is the shape of a red signal light in traffic signs?

4) Solve: $1/(x-3) + 1/(x-7) = 1/(x-1) + 1/(x-9)$

5) Write the sum of powers of prime factors of 196.

6) Write the power of $\text{cosec } 50^\circ . \text{cosec } 40^\circ$.

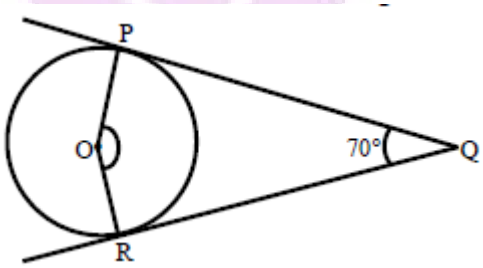
7) Write the locus of the point equidistant from the two given points.

8) HCM and LCM of two integers are 12 and 336 respectively. If one integer is 48, then find the other integer.

9) If the ratio of corresponding medians of two similar triangles are 9: 16, then find the ratio of their areas.

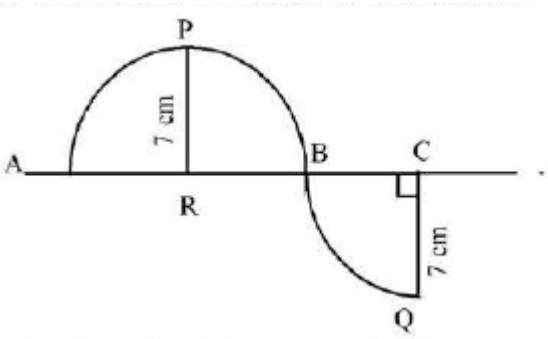
10) Express the trigonometric ratio of tan A in terms of sec A.

11) In the given figure, O is the center of a circle and two tangents QP and QR are drawn on the circle from a point Q lying outside the circle. Find the value of angle POR.



12) Find the circumference of a circle whose diameter is 14cm.

13) Find the area of the shaded portion in the given figure:



14) A CCTV camera is placed on the top of a straight 12 meter high pole in such a way that traffic can be seen beyond 13 meter of line of sight of it. Find the distance from the foot of the pole beyond which the traffic is visible.

15) Find the square root of 6889 by using Dwandwa Yoga Method.

16) By using division algorithm method find the quotient and remainder when polynomial $P(x) = x^4 - 3x^2+4x-3$ is divided by $g(x) = x^2 + 1-x$.

17) Name the type of quadrilateral formed by the points (4, 5), (7, 6), (4, 3), (1, 2).

18) A vessel is in the form of a hollow hemisphere. The diameter of the hemisphere is 14 cm. Find inner surface area of the vessel.

19) A car travels 260 km distance from a place A to place B, at a uniform speed 65 km/hr passes through all thirteen green traffic signals, 4 minutes at first signal, 7 minutes at second signal, 10 minutes at third signal and so on stops for 40 minutes at thirteenth signal. How much total time it takes to reach at the place B? Solve by suitable Mathematical Method.

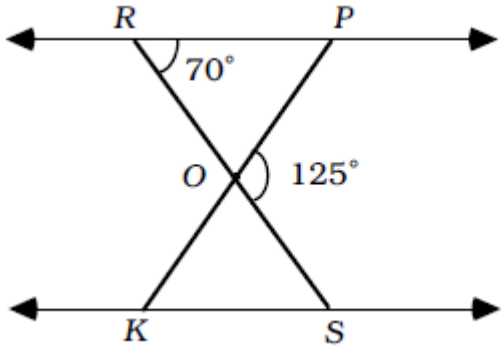
20) Per day expenses of 25 families of the frequency distribution of a Dhani of a village is given as follows:

Per Day Expenses (In Rs.)	25-35	35-45	45-55	55-65	65-75
Number of Families	3	7	6	6	3

Find the mean expense of families by Direct Method.

21) Find the value of (tan 67°) / **(**cot 23°).

22) In the figure, Δ OPR ~ Δ OSK , ∠ POS = 125˚ and ∠ PRO = 70˚. Find the values of ∠ OKS and ∠ ROP.



23) Find a quadratic polynomials whose sum and product of zeros are 8 and 12 respectively.

24) The angle of elevation of top of the tower from two points C and D at a distance of x and y from the base of the tower in the same straight line with it are complementary. Prove the height of the tower is √xy.

25) Circumference of a circle is equal to the perimeter of a square, if the area of a square is 484 sq. meter, then find the area of the circle.

26) A card is drawn from a well-shuffled pack of 52 cards. Find the probability of the following that the card is:
   (1) Black
   (2) Ace of Heart
   (3) Spade

27) If the second and third terms of an Arithmetic Progression are 3 and 5 respectively, then find the sum of first 20 terms of it.

28) Prove that the angle between the two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line-segment joining the points of contact at the center.

29) Prove that:

(i) $\sqrt{\frac{1+\cos\theta}{1-\cos\theta}} = \text{cosec}\,\theta + \cot\theta$

(ii) $\frac{\tan\theta}{1-\cot\theta} + \frac{\cot\theta}{1-\tan\theta} = 1 + \tan\theta + \cot\theta$

30) A well of diameter 7 m is dug and earth from digging is evenly spread out to form a platform 22 m × 14 m × 2.5 m. Find the depth of the well.

31) Prove the √6 is an irrational number.

32) A box contains 7 red marbles, 10 white marbles and 5 green marbles. One marble is taken out of the box at random. What is the probability that the marble taken out will be
(i) not red? (ii) White? (iii) Green?

33) Seven spheres of equal radii are made by melting a silver-cuboid of dimensions 8cm × 9cm ×11cm - Find the radius of a silver sphere.

34) (i) If distance between points (x, 3) and (5, 7) is 5, then find the value of x.
(ii) Find the ratio in which the line 3x + y = 9 divides the line segment joining the points (1, 3) and (2, 7).

35) ABC is a right angled triangle whose ∠B is right angle. If points D and E are situated on the sides AB and BC respectively, then prove that $AE^2 + CD^2 = AC^2 + DE^2$.

36) The diagonal of a rectangular field is 25 meters more than the shorter side. If longer side is 23 meters more than the shorter side, find the sides of the field.

37) Prove that (tan A- sin A) / (tan A + sin A) = (sec A-1)/ (sec A +1)

38) PQRS is a trapezium in which PQ || RS and its diagonals intersect each at the point O. Prove that PO/ QO = RO/SO

39) Solve the following pair of linear equations by graphical method: 2x + y = 6, 2x – y = 2. Thus find the value of p in the relation 6x + 7y = p.

40) The cost of 5 apples and 3 oranges is Rs. 35 and the cost of 2 apples and 4 oranges is Rs. 28. Formulate the problem algebraically and solve it graphically.