MATHS

BOOKS - VK GLOBAL PUBLICATION MATHS (HINGLISH)

POST-MID TEAM TEST PAPER
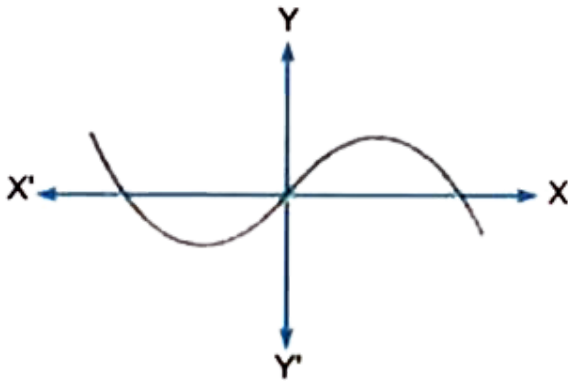
Section A

1. Find a rational number between $\sqrt{2}$ and $\sqrt{3}$.
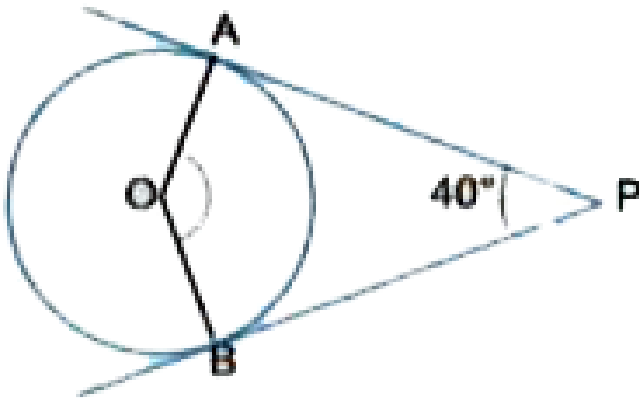
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2. Find the number of zeros/zero of the polynomial $y = f(x)$ whose graph is given below.

3. given below, O in the centre of circle, PA and PB are the pair of tangent drawn to the circel from point P outside the circle. If $\angle APB = 40°$, then find $\angle AOB$.

4. A bag contains 3 red and 7 back. A ball is taken out of the bag aty random. Find the probability of getting a black ball.

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5. For what value of k the quadratic equation $x^2 - kx + 4$ have real and equal roots ?

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6. The length of tangent from a point A at a distance of 5 cm from the centre of the circle is 4 cm. What will be the radius of the circle ?

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Section B

1. In an AP, the sum of first n terms is $n^2 + 2n$. Find its 18th term.

2. Without using trigonometric table, evaluate the following:

$$\left(\sin^2 25° + \sin^2 65°\right) + sqret3(\tan 5°.\tan 15°.\tan 30°.\tan 75°.\tan 85°)$$

3. Find the zeros of the quadratic polynomial $2x^2 - 9 - 3x$ and verify the relationship between the zeros and the co-efficient.
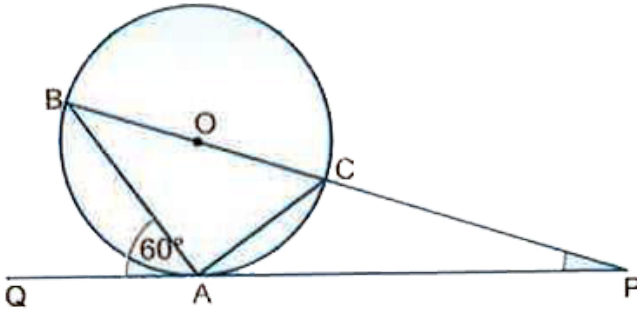
4. A box contains card bearing numbers from 6 to 70. If one card is drawn at random from the box, find the porbability that it bears (i) a one digit number(ii) a number divisible by 5.

5. In the given is the centre of circle, PQ is a tangent to the circle at A. If $\angle BAQ = 60°$ then find $\angle ABC$ and $\angle APB$.

6. If a square is inscribed in a circle, then what is the ratio of the area of the circle and that of the square?

Section C

1. Using prime factorization method find the HCF and LCM of 72 , 126 and 168. Also show that HCF x LCM is not equal to the product of the three numbers

2. For what value of 'k' will the equation $2kx^2 - 2(1 + 2k)x + (3 + 2k) = 0$ have real but distinct roots ? When will the roots be equal ?

3. The sum of the 4th and 8th terms of an AP is 24 and the sum of the 6th and 10th terms is 44. Find the first three terms of the AP.

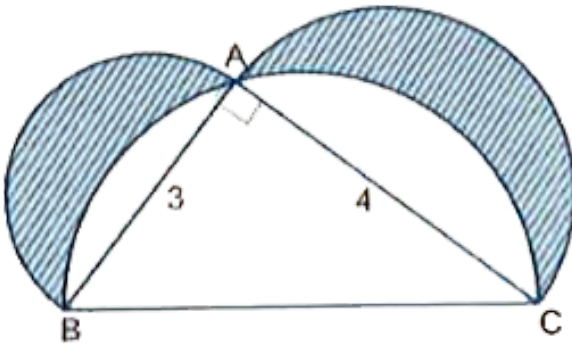**4.** Construct a triangle of sides 4 cm, 5 cm and 6 cm and then a triangle similar to it whose sides are $\dfrac{2}{3}$ of the corresponding sides of the first triangle.

5. ABC is a right-angled triangle at A. Semicircles drawn on AB, AC and BC as diameters. Find area of the shaded region.

6. D and E are points on the sides CA and CB respectively of a triangle ABC right angled at C. Prove that $AE^2 + BD^2 = AB^2 + DE^2$.

7. Solve graphically following system of linear equations. Also find the coordinates of the points where the lines meet axis of y .

$$3x + y - 5 = 0, \quad 2x - y - 5 = 0$$

**8.** $\sqrt{\dfrac{\sec A - 1}{\sec A + 1}} + \sqrt{\dfrac{scA + 1}{\sec A - 1}} = 2cosecA$

9. The sum of the areas of two squares is $640m^2$. If the difference in their perimeters be 64 m, find the sides of the two squares.

10. Prove that the length of the tangent drawn from an external point to a circle are equal. Using the above, do the following: TP and TQ are tangents from T to the circle with circle O and R in any point on the circle. If AB is a tangent to the circle at R, prove that TA + AR =TB +BR.
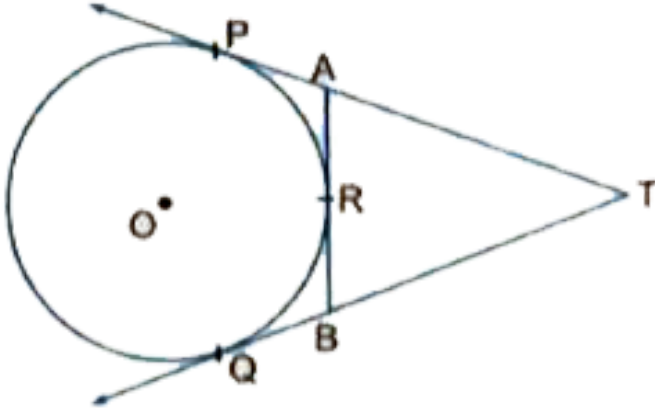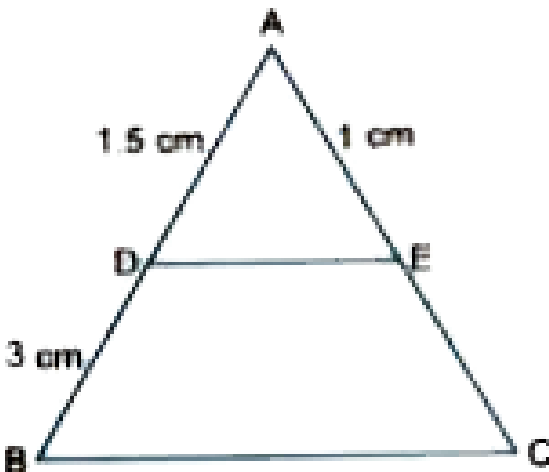

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Section D

1. For the following frequency distribution, draw a cumulative frequency curve of more than type and hence obtain the median value:

Class	0–10	10–20	20–30	30–40	40–50	50–60	60–70
Frequency	5	15	20	23	17	11	9

2. Roohi travels 300 km to her home partly by train and partly by bus. She takes 4 hours if she travels 60 km by train and the remaining by bus. If she travels 100 km by train and the remaining by bus, she takes 10 minutes longer. Find the speed of the train and the bus separately.

3. If a line is drawn parallel to one side of a triangle to intersect the other two sides in disinct points, the other two sides are divided in the same ratio. Using this theoure. Find EC in if $DE \mid \mid BC$.

4. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting

(i) a king of red color

(ii) a face card

(iii) a red face card

(iv) the jack of heart

(v) a spade

(vi) the queen of diamond.

5. If two zeros of the polynomial $f(x) = x^4 - 6x^3 - 26x^2 + 138x - 35$ are $2 \pm \sqrt{3}$, find other zeros.
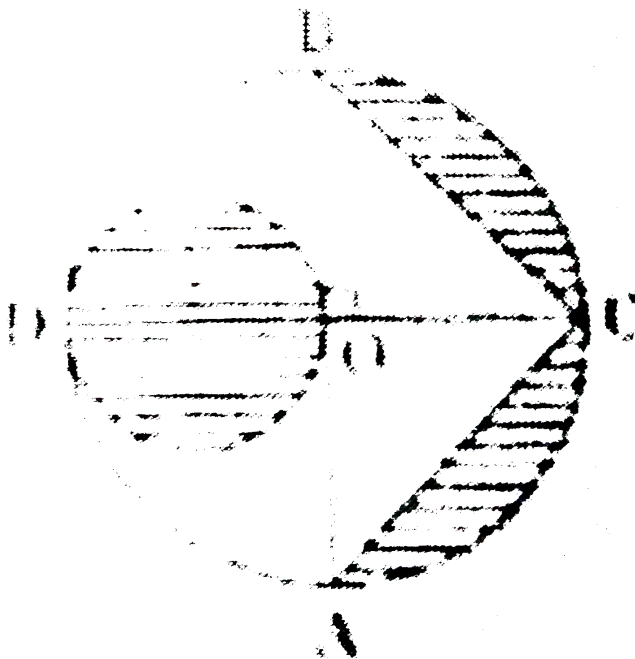
6. In a school students thought of planting trees in and around the school to reduce air pollution. It was decided that the number of trees, that each section of each class will plant, will be the same as the class, in which they are studying, e.g.,

7. If Figure - 4, AB and CD are two diameter of a circle (with centre O) perpendicular to each other and OD is the diameter of the smaller circle. IF OA = 7 cm, then find the area of the shaded region.

8. A manufacture of TV set produced 600 sets in the third year and 700 sets in the seventh year. Assuming that the production increases uniformly by a fixed number every year, find:

(i) the production in the first year

(ii) the production in the 10th year.

(iii) the total production in first 7 years.