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MATHS

BOOKS - VK GLOBAL PUBLICATION MATHS (HINGLISH)

MODEL QUESTION PAPER-10 [UNSOLVED]

Section A

1. Express 7429 as a product of its prime factors.

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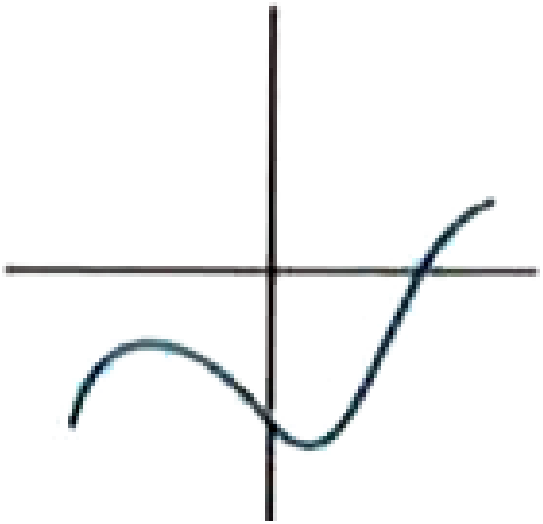
2. The graph ofy = P(x) are given in Fig. 1, where P(x) as polynomial.

Find the number of zeros of P(x)



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3. Find out whether the lines representing the following pairs of linear equations intersect at a point, are parallel or coincident.

$6x - 3y + 10 = 0$

$2x - y + 9 = 0$

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4. Which term of the AP : 3, 8, 13, 18, . . . , is 78?

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5. A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that $OQ = 13cm$. Find the length of PQ .

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6. If $P(E) = 0.05$ P(E) = 0.05, what is the probability of not E?

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Section B

1. Fnd the HCF of 867 and 255

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2. Divide $3x^3 + x^2 + 2x + 5$by $1 + 2x + x^2$.

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3. Find the roots of following quadratic equation by factorisation:

$\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$

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4. In $DelatOPQ$, right - angled at P , OP = 7 cm and OQ - PQ =1 cm .

Determine the values of sinQ and cos Q .

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5. Express $\cot \backslash\ 85o \backslash\ + \backslash\ \cos \backslash\ 75o$ in terms of trigonometric ratios of angles between $0o$ and $45o$

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6. Find the area of the sector of a circle with radius 4 cm and of angle 30°. Also, find the area of the corresponding major sector. [Take $\pi = 3.14$]

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Section C

1. Prove that $\sqrt{2} + \sqrt{3}$ is irrational.

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2. Find a cubic polynomial with the sum, sum of the products of its zeros taken two at a time, and product of its zeros as $2, \ -7, \ -14$ respectively.

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3. Form the pair of linear equations in the following problem, and find the solution graphically: 10 students of class X took part in Mathematics quiz. If the number of girls is 4 more than the number of boys, find the number of boys and girls who took part in the quiz.

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4. In a potato race, a bucket is placed at the starting point, which is 5 m from the first potato, and the other potatoes are placed 3 m apart in a straight line. There are ten potatoes in the line (see Figure). A competitor starts from the bucket, pi

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5. Four points $A(6, 3),\ B(-3, 5),\ C(4, -2) and\ D(x, 3x)$ are given in such a way that $\frac{DBC}{ABC} = \frac{1}{2},\ f \in d\ x.$

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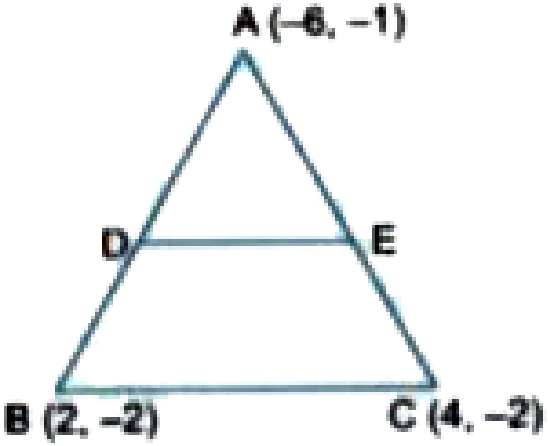
6. In the given Fig. 3, in ΔABC, D and E are the mid point of the sides AB and AC respectively. Find the length of DE. Prove that $DE = \frac{1}{2}BC.$



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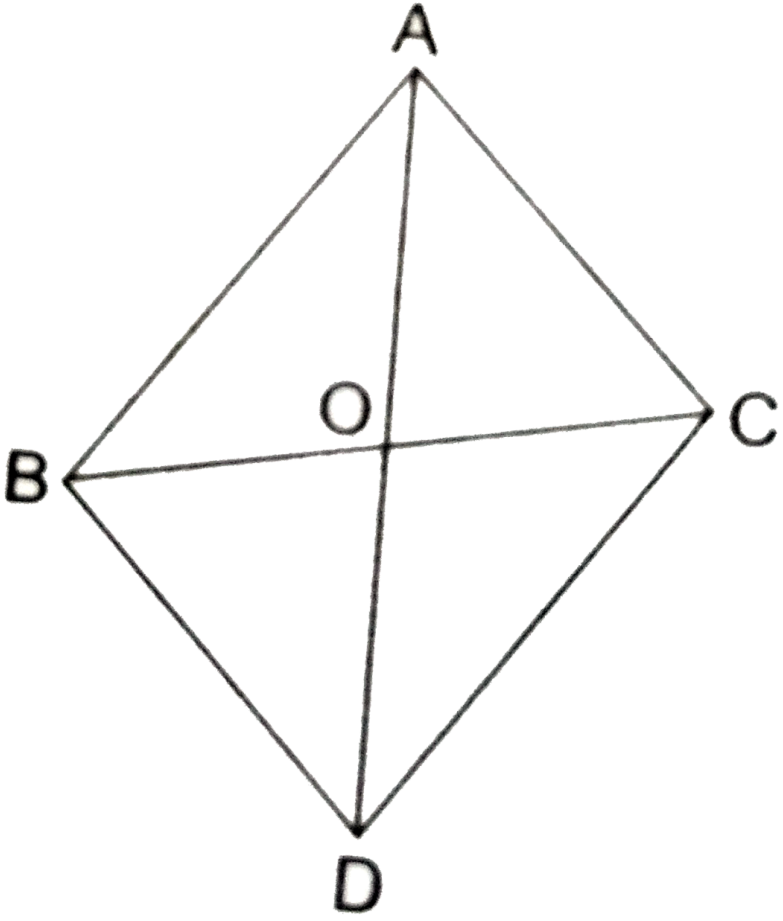
7. In the same figure, ΔABC and ΔDBC are on the same base BC .

If AD is intersects BC at O, prove that

$$\frac{ar(\Delta ABC)}{ar(\Delta DBC)} = \frac{AO}{DO}$$



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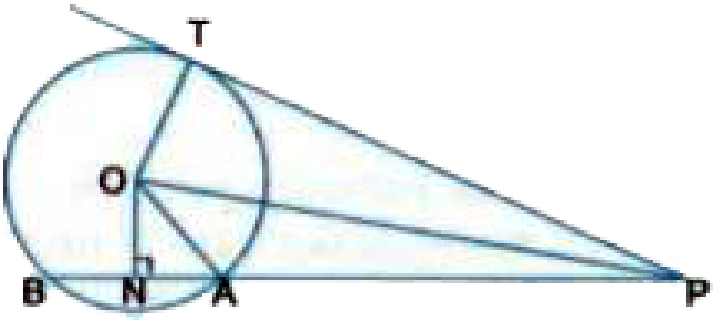
8. In the given Fig. 5, from an external point P, a tangent PT and a secant PAB is drawn to a circle with centre 0. ON is perpendicular on the chord AB. Prove that $PA.\ PB = PT^2$?.



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9. Consider the following distribution of daily wages of 50 workers of a factory.

Daily wages (in ₹)	100–120	120–140	140–160	160–180	180–200
Number of workers	12	14	8	6	10

Find the mean daily wages of the workers of factory by using an appropriate method.

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10. A lot consists of 144 ball pens of which 20 are defective and the others are good. Nuri will buy a pen if it is good, but will not buy if it is defective. The shopkeeper draws one pen at random and gives it to her. What is the probability that (i

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Section D

1. A contractor plans to install two slides for the children to play in a park. For the children below the age of 5 years, she prefers to have a slide whose top is at a height of 1.5 m, and is inclined at an angle of $30o$to the ground, whereas for

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2. A motor boat whose speed is 18 km/h m 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.

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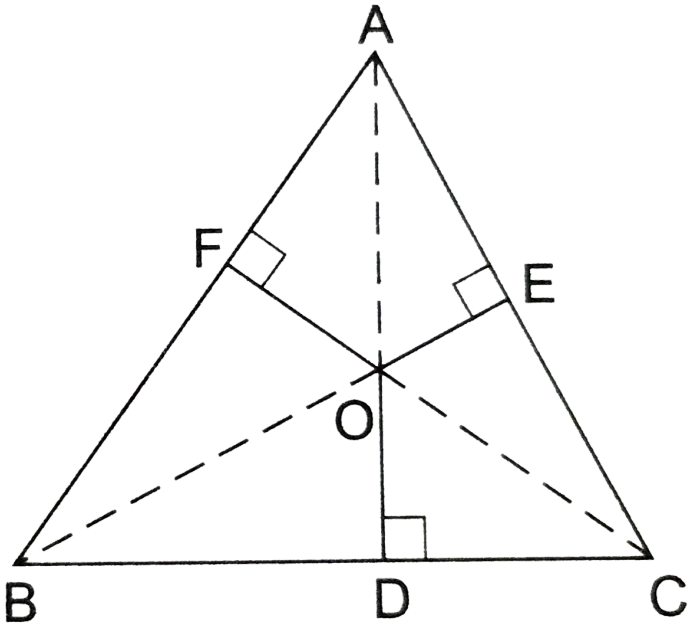
3. O is the a point in the interior of $\Delta ABC, OD \perp BC, OE \perp AC$ and AC and $OF \perp AB,$ as shown in the figure,



Prove that :

$(i) OA^2 + OB^2 + OC^2 - OD^2 - OD^2 - OF^2 = AF^2 + BD^2 + CE^2$

(ii) $AF^2 + BD^2 + CE^2 = AD^2 + BF^2 + CD^2$

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4. Draw a circle of radius 3 cm. Take two points P and Q on one of its extended diameter each at a distance of 7 cm from its centre. Draw tangents to the circle from these two points P and Q.

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5. $\frac{\sin\theta - \cos\theta + 1}{\sin\theta + \cos\theta - 1} = \frac{1}{\sec\theta - \tan\theta}$

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6. Fig. 12.26 depicts a racing track whose left and right ends are semicircular. The distance between the two inner parallel line segments is 60 m and they are each 106 m long. If the track is 10 m wide, find : (i) the distance around the track alon

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7. A gulab jamun, contains sugar syrup up to about 30% of its volume. Find approximately how much syrup would be found in 45 gulab jamuns, each shaped like a cylinder with two hemispherical ends with length 5 cm and diameter 2.8 cm

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8. The following is the cumulative frequency distribution (of less than type) of 1000 persons each of age of 20 years and above.

Determine the mean age.

Age below	30	40	50	60	70	80
Number of Persons	100	220	350	750	950	1000

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