

Q.I] A) Solve the following : (2)

- 1) The length of hypotenuse of a right angled triangle is 16. Find the length of median of the hypotenuse.
- 2) Find the value of $\tan 48^\circ \times \tan 42^\circ$

B) Solve the following : (2)

- 1) On which axis or quadrant will the point given below lie ?
 - a) A (-3,2)
 - B) B (8,-4)
 - C) C (-8.9,0)
 - d) D (0,-1.07)

Q.II] A) Solve the following : (4)

- 1) Determine whether points $A(-4,4)$, $K(-2, \frac{5}{2})$, $N(4,-2)$ are collinear or not ?

- 2) Prove that $\frac{1+\sin A}{\cos A} + \frac{\cos A}{1+\sin A} = 2\sec A$

B] Solve the following : (6)

- 1) A regular hexagon is inscribed in a circle of radius 14cm. Find the area of the region between the circle and the hexagon ($\pi = \frac{22}{7}$ and $\sqrt{3} = 1.732$)
- 2) To find the width of the river, a man observes the top of tower on the opposite bank making an angle of elevation of 61° when he moves 50 m backward from bank observes the same top of the tower, his line of vision makes an angle of elevation of 35° . Find the height of the tower & width of the river ($\tan 61^\circ = 1.8$ $\tan 35^\circ = 0.7$)

Q.III A] Solve the following (2)

- 1) A metal parallelepiped (cuboid) of measures 16 cm \times 11 cm \times 10cm was melted to make coins. How many coins were made if the thickness & diameter of each coin was 2 mm & 2 cm respectively ?

$$\left(\pi = \frac{22}{7}\right)$$

...2...

B] Solve the following :

(2)

1) Complete the following activity :

If $\tan \theta = 1$ find the value of $\frac{\sin \theta + \cos \theta}{\sec \theta + \operatorname{cosec} \theta}$

Solution: $\tan \theta = 1$

But $\tan \theta = 1$

$\therefore \theta = 45^\circ$

$$\frac{\sin \theta + \cos \theta}{\sec \theta + \operatorname{cosec} \theta} = \frac{\sin 45^\circ + \cos 45^\circ}{\sec 45^\circ + \operatorname{cosec} 45^\circ}$$

$$= \frac{1 + 1}{1 + 1}$$

$$= \frac{2}{2}$$

$$= 1$$

$$= \frac{2}{\sqrt{2}} \times \frac{1}{2\sqrt{2}}$$

$$= 1$$
