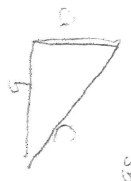


Q.1) Prove that Area of Rectangle = Length × Breadth (100 marks)

The area of the triangle
 $S_1 = \frac{1}{2} ab$
 $S_2 = \frac{1}{2} ac$



Needed Equation

Area of triangle = $\frac{1}{2}(ab)$

$S_1 = \frac{1}{2} ab$, $S_2 = \frac{1}{2} ac$

Pythagoras is $c^2 = a^2 + b^2$

$$S_2 = \frac{1}{2} ac = \frac{1}{2} a \sqrt{a^2 + b^2}$$

$$C = \sqrt{a^2 + b^2}$$

$$\frac{1}{2} S_2 = \frac{1}{2} a \times b$$

Where $S_1 = \frac{1}{2} ab$

$$\therefore S_1 = \frac{1}{2} a \times \left(\frac{1}{2} \sqrt{a^2 + b^2} \right) + \frac{1}{2} a \times \left(\frac{1}{2} \sqrt{a^2 + b^2} \right)$$

$$= \frac{ab}{2} \left(\frac{1}{2} + \frac{1}{2} \right)$$

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

where $\frac{ab}{2} = \text{Area}$

SA is the 1/2 of the Area

Question 8

$$C^2 = a^2 + b^2$$

$$C = \sqrt{a^2 + b^2}$$

$$S_1 = \frac{1}{2} ab$$

$$S_2 = \frac{1}{2} ac = \frac{1}{2} a \sqrt{a^2 + b^2}$$

$$S_3 = \frac{1}{2} ab$$

$$S_4 = \frac{1}{2} ab$$

$$\frac{dC}{da} = \frac{2a}{2\sqrt{a^2 + b^2}}$$

$$S_1 = \frac{1}{2} \left(\frac{1}{2} \sqrt{a^2 + b^2} \right) + \left(\frac{1}{2} \sqrt{a^2 + b^2} \right) \times \frac{1}{2} = \frac{1}{2} \left(\frac{1}{2} \sqrt{a^2 + b^2} \right) \times \frac{2}{2} = \frac{1}{2} \sqrt{a^2 + b^2}$$