

$$2) \quad b = \sqrt{a^2 + h^2}$$

$$dh = \frac{dh}{da} \cdot da + \frac{dh}{dh} \cdot dh$$

$$\text{let } h = \sqrt{a^2}$$

$$\text{where } a = a^2 + b^2$$

$$\frac{da}{da} = 2a, \quad \frac{da}{db} = 2b$$

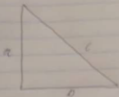
$$\frac{dh}{da} = \frac{1}{2} 2a^{-1/2}$$

$$\therefore \frac{dh}{da} = \frac{1}{2} 2a^{-1/2} \times 2a$$

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

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

$$\frac{dh}{db} = 1$$



$$9) \text{ Area} = \frac{1}{2}bh$$

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

$$\frac{\partial A}{\partial a} = \frac{\partial A}{\partial a} \cdot \partial a + \frac{\partial A}{\partial b} \cdot \partial b$$

$$\frac{\partial A}{\partial a} = \frac{b}{2} \quad \frac{\partial A}{\partial b} = \frac{a}{2}$$

$$\partial a = \pm 1.5a \quad \partial b = \pm 1.5b$$

$$\therefore \frac{\partial A}{\partial a} = \frac{b}{2} \left(\frac{\pm 1.5a}{100} \right) + \frac{a}{2} \left(\frac{\pm 1.5b}{100} \right)$$

$$\partial A = \frac{ab}{2} \left(\frac{\pm 3}{100} \right)$$

$$\text{but } \frac{ab}{2} = A$$

$$\therefore \partial A = \frac{\pm 3}{100} (A)$$

\therefore Change in area is $\pm 3\%$ when change is a and b is $\pm 1\%$