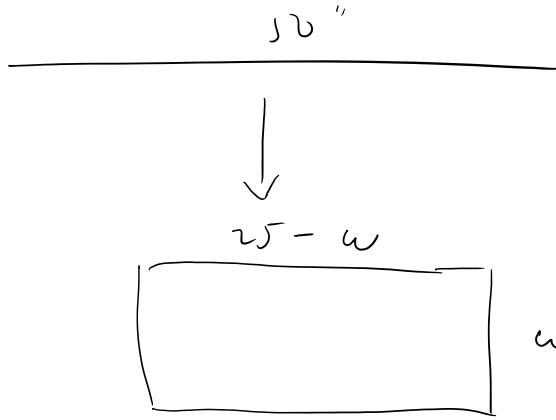


①



$$A = w(25 - w)$$

$$A = 25w - w^2$$

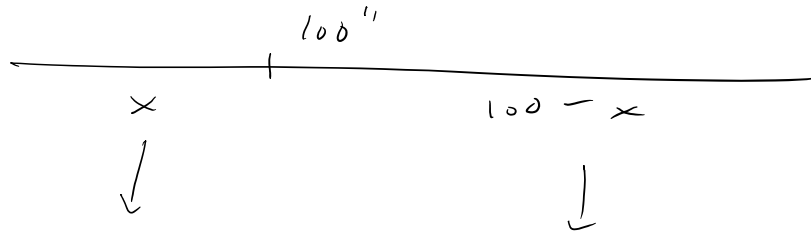
$$\frac{dA}{dw} = 25 - 2w = 0$$

$$w = 12.5$$

$$25 - w = 12.5$$

SUVANE

(2)



$$\begin{aligned}
 \text{Area} &= \left(\frac{x}{4}\right)^2 + \left(\frac{100-x}{4}\right)^2 = \frac{x^2}{16} + \frac{10,000 - 200x + x^2}{16} \\
 &= \frac{2x^2 - 200x + 10,000}{16}
 \end{aligned}$$

$$\frac{dA}{dx} = \frac{1}{16} (4x - 200) = 0 \quad x = 50$$

$A'' = \frac{1}{4} > 0$ so $x = 50$ is a MIN



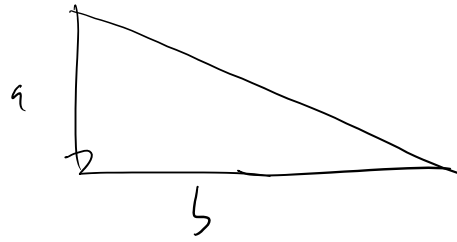
$$\textcircled{3} \quad S = x + \frac{1}{x} = x + x^{-1}$$

$$\frac{dS}{dx} = -x^{-2} + 1 = 0 \quad -\frac{1}{x^2} + 1 = 0$$

$$x = 1$$



(4)



$$a + b = 10 \quad \} = 10 - a$$

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

$$\text{Area} = \frac{a(10-a)}{2} = \frac{10a - a^2}{2}$$

$$\frac{dA}{da} = \frac{1}{2} (10 - 2a) = 0$$

$$a = 5 \\ b = 5$$

$A'' = -1$ so $a=5$ is a ~~max~~