

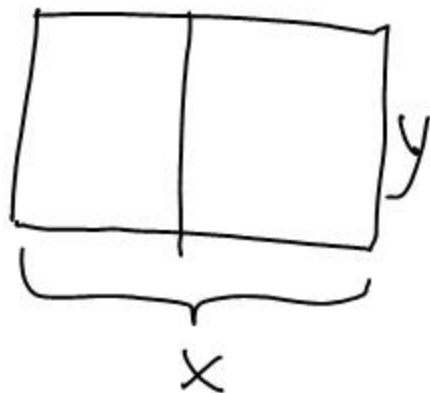


$$\# 3 \quad A = xy$$

$$3y + 2x = 400$$

$$3y = 400 - 2x$$

$$y = \frac{400 - 2x}{3}$$



$$A = x \left(\frac{400 - 2x}{3} \right) = \frac{400x - 2x^2}{3}$$

where is this a maximum?



$$A' = \frac{400 - 4x}{3} = 0$$

$$400 - 4x = 0$$

$$4x = 400$$

$$x = 100 \text{ ft}$$

$$3 \overline{) 200} \\ \underline{18} \\ 20$$

$$y = \frac{400 - 2(100)}{3} = \underline{66.7 \text{ ft}}$$

74 #3

$$s(t) = t^3 - 12t^2 + 36t - 10$$
$$0 \leq t \leq 7$$

find the maximum



$$s'(t) = 3t^2 - 24t + 36 = 0$$

$$t^2 - 8t + 12 = 0$$

$$(t - 2)(t - 6) = 0$$

$$t = 2 \text{ or } t = 6$$

$$s(2) = 2^3 - 12(2)^2 + 36(2) - 10 = 22$$

$$s(6) = 6^3 - 12(6)^2 + 36(6) - 10 = \underline{350}$$

↑
max displacement

Test Review