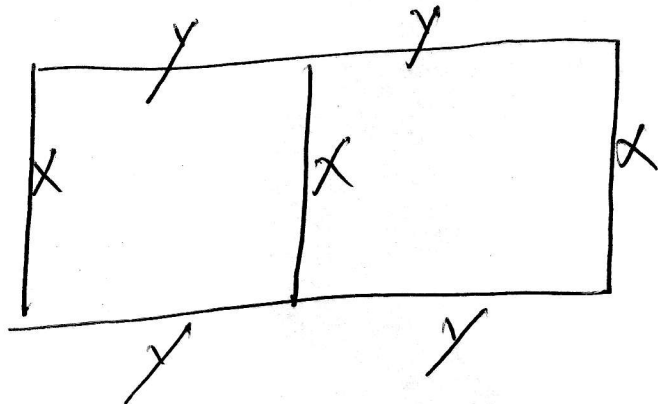


Practice test 3 #10 Perimeter = 160



let $x = \text{width}$ & $2y = \text{length}$

$$\begin{aligned} \text{Area} &= \text{width} \times \text{length} \\ &= 2y \cdot x \end{aligned}$$

$$\text{Perimeter} = 4y + 3x = 160$$

$$y = \frac{160 - 3x}{4}$$

$$= 40 - \frac{3}{4}x$$

Substitute:

$$A(x) = 2y \cdot x$$

$$= 2\left(40 - \frac{3}{4}x\right)x$$

$$= 80x - \frac{3}{2}x^2$$

$$A'(x) = 80 - 3x = 0$$

$$\text{max when } x = \frac{80}{3}$$

$$y = 40 - \frac{3}{4}\left(\frac{80}{3}\right) = 40 - 20 = 20$$

Answer B

Area

$$2y = 40$$

$$x = \frac{80}{3}$$