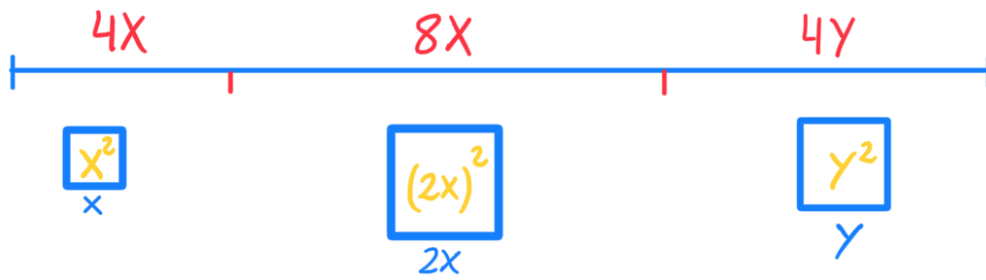


140 m



$$4X + 8X + 4Y = 140 \quad \text{Condición}$$

$$12X + 4Y = 140$$

$$3X + Y = 35 \quad \longrightarrow \quad Y = 35 - 3X$$

$$f(x, y) = X^2 + (2X)^2 + Y^2 = X^2 + 4X^2 + Y^2 = 5X^2 + Y^2$$

$$f(x, y) = 5X^2 + Y^2 \quad \text{Función}$$

$$f(x) = 5X^2 + (35 - 3X)^2$$

$$f'(x) = 10X + 2(35 - 3X) \cdot (-3) = 10X - 6(35 - 3X) =$$

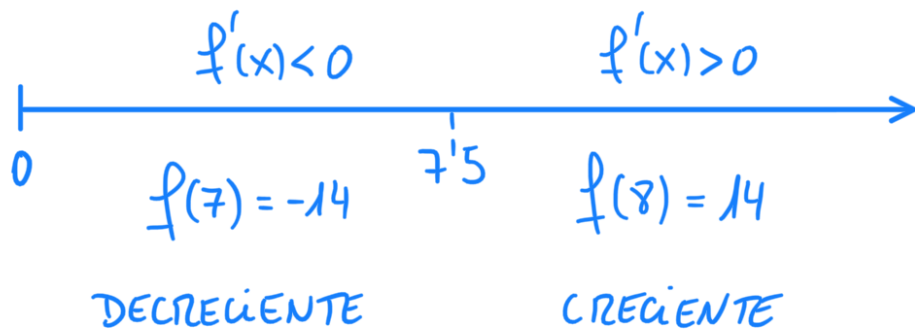
$$10X - 210 + 18X = 28X - 210$$

$$f'(x) = 28X - 210$$

$$28X - 210 = 0$$

$$X = \frac{210}{28} = 7.5$$

# MONOTONÍA



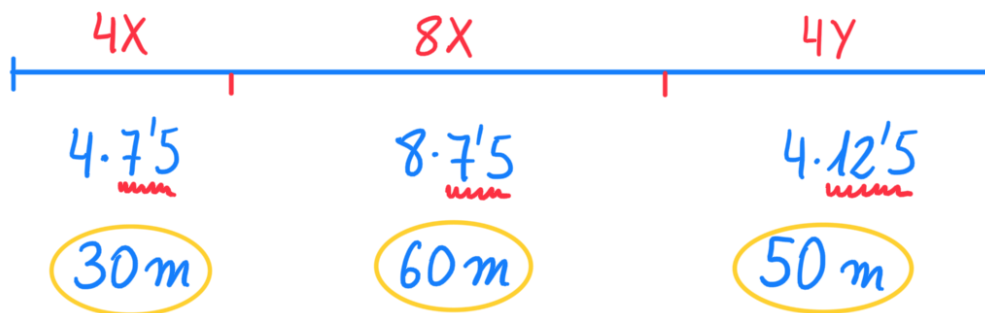
$x = 7.5$  m  
Mínimo

$$y = 35 - 3x$$

$$y = 35 - 3 \cdot 7.5$$

$$y = 12.5$$

140 m



LA LONGITUD DE LOS TROZOS: 30, 60 y 50 m