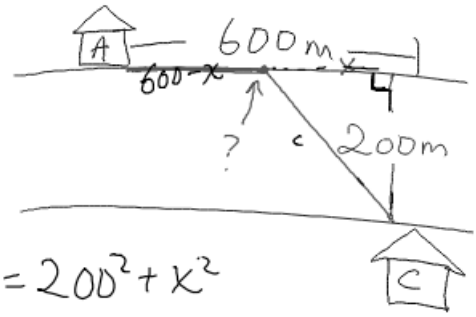
$$\text{Cost} = \underset{\text{unit cost}}{30}\underset{\text{units}}{(600-x)} + 50(200^2+x^2)^{1/2}$$



$$c^2 = 200^2 + x^2$$

$$c = \sqrt{200^2+x^2}$$

$$\text{Cost} = 30(600-x) + 50(200^2+x^2)^{1/2}$$

$$\text{Cost} = 18{,}000 - 30x + 50(200^2+x^2)^{1/2}$$

$$C' = -30 + 25(200^2+x^2)^{-1/2}\cdot 2x$$

$$C' = -30 + \frac{50x}{\sqrt{200^2+x^2}} = 0$$

$$\left(\frac{50x}{\sqrt{200^2+x^2}}\right) = (30)\sqrt{}$$

$$50x = 30\sqrt{200^2+x^2}$$

$$\left(\frac{5}{3}x\right)^2 = \left(\sqrt{200^2+x^2}\right)^2$$

$$\frac{25}{9}x^2 = 200^2 + x^2$$

$$-1x^2 \qquad -1x^2$$

$$\sqrt{\frac{16}{9}x^2} = \sqrt{200^2}$$

$$\frac{3}{4}\left(\frac{4}{3}x = 200\right)\frac{3}{4}$$

$$x = 150$$