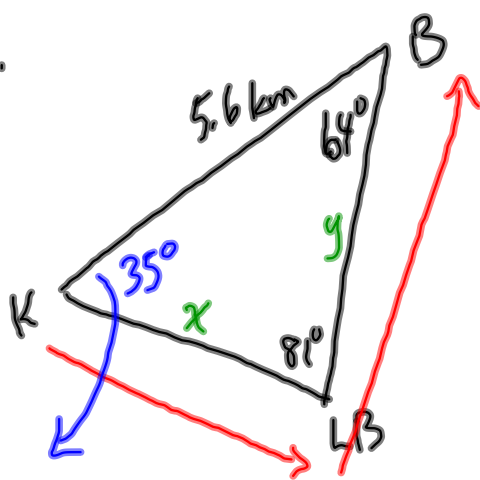


45.



$$180^\circ - (64^\circ + 81^\circ)$$

$$= 180^\circ - 145^\circ$$

$$= 35^\circ$$

$$\text{TOTAL} = 5.1 \text{ km} + 3.3 \text{ km}$$

$$= 8.4 \text{ km}$$

$$\frac{5.6}{\sin 81^\circ} = \frac{y}{\sin 35^\circ}$$

$$y \sin 81^\circ = 5.6 (\sin 35^\circ)$$

$$y = \frac{5.6 (\sin 35^\circ)}{\sin 81^\circ}$$

$$y = 3.3 \text{ km}$$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

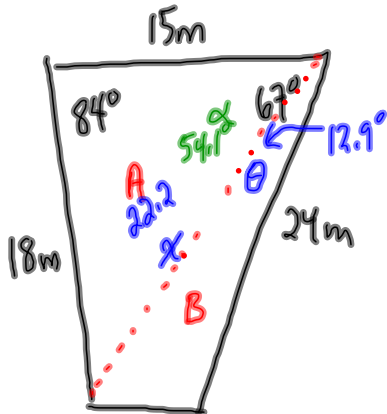
$$\frac{5.6 \text{ km}}{\sin 81^\circ} = \frac{x \text{ km}}{\sin 64^\circ}$$

$$(5.6 \text{ km}) \sin 64^\circ = (x \text{ km}) \sin 81^\circ$$

$$x \text{ km} = \frac{(5.6 \text{ km}) \sin 64^\circ}{\sin 81^\circ}$$

$$x = 5.1 \text{ km}$$

46.



$$\text{Area} = \frac{1}{2}bh$$

or

$$\text{Area} = \frac{1}{2}ab \sin C$$

Section A:

$$\text{Area} = \frac{1}{2}ab \sin C$$

$$\text{Area} = \frac{1}{2}(18)(15)\sin 84^\circ$$

$$\text{Area} = 134.3 \text{ m}^2$$

Law of Cosines (to find x)

$$c^2 = a^2 + b^2 - 2ab \cos C$$

$$x^2 = 18^2 + 15^2 - 2(18)(15)\cos 84^\circ$$

$$x^2 = 324 + 225 - 540\cos 84^\circ$$

$$x^2 = 492.55$$

$$x = 22.2 \text{ m}$$

Law of Sines (to find α)

$$\frac{a}{\sin A} = \frac{b}{\sin B}$$

$$\frac{22.2}{\sin 87^\circ} = \frac{18}{\sin \alpha}$$

$$22.2 \sin \alpha = 18 \sin 87^\circ$$

$$\sin \alpha = \frac{18 \sin 87^\circ}{22.2}$$

$$\alpha = \sin^{-1}(0.8097)$$

$$\alpha = 54.1^\circ$$

Area of Section B

$$\text{Area} = \frac{1}{2}ab \sin C$$

$$\text{Area} = \frac{1}{2}(22.2)(24)(\sin 12.9^\circ)$$

$$\text{Area} = 59.6 \text{ m}^2$$

$$\begin{aligned} \text{TOTAL AREA} &= 134.3 \text{ m}^2 + 59.6 \text{ m}^2 \\ &= 193.9 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{TOTAL COST} &= 193.9 \text{ m}^2 \times \$8.25 \\ &= \$1599.88 \end{aligned}$$