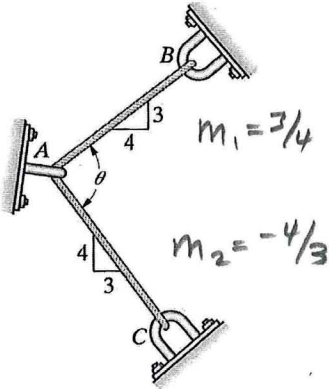
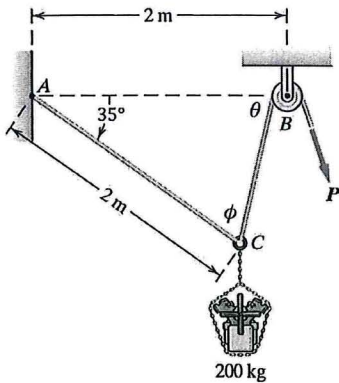


1. Cables AB and AC have the slopes indicated. Determine the angle  $\theta$ .



$\theta = 90^\circ$  SINCE  
PERPENDICULAR  
LINES HAVE  
NEGATIVE RECIPROCAL  
SLOPES, SO  
 $\theta = 90^\circ$

2. Determine the measure of angles  $\theta$  and  $\phi$ .



TRIANGLE ABC IS ISOSCELES  
SO  $\theta = \phi$

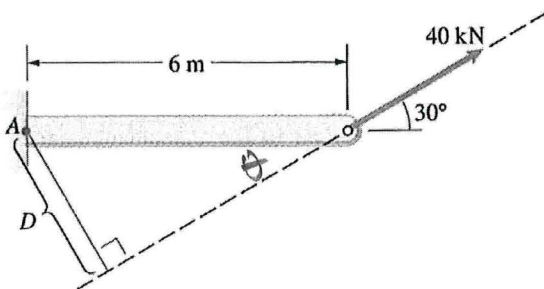
$$35^\circ + \theta + \phi = 180^\circ$$

$$2\theta = 145^\circ$$

$$\theta = 72.5^\circ$$

$$\phi = 72.5^\circ$$

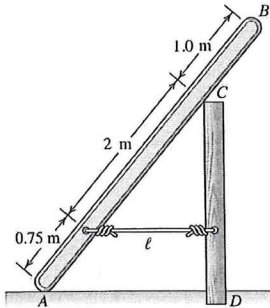
3. Determine the perpendicular distance  $D$ .



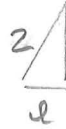
$$\theta = 30^\circ$$

$$D = 6 \sin \theta = 3 \text{ m}$$

4. If the distance between points A and D is 1.75 m, how long is the cable?



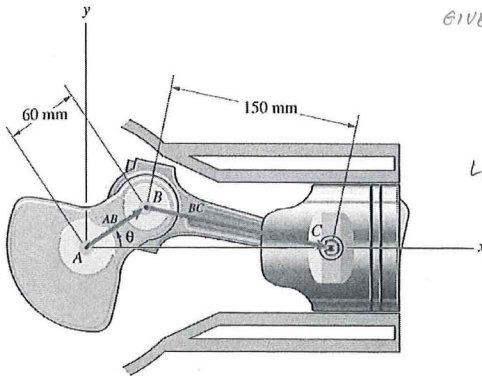
SIMILAR TRIANGLES



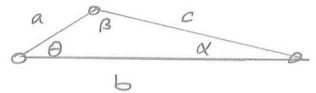
$$\frac{1.75}{2.75} = \frac{l}{2}$$

$$l = 1.27 \text{ m}$$

5. Determine the distance AC when angle  $\theta$  is  $28^\circ$ .



GIVEN:  $a = 60 \text{ mm}$   
 $c = 150 \text{ mm}$   
 $\theta = 28^\circ$



L.O.S.

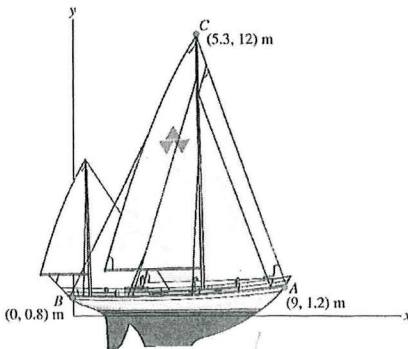
$$\frac{c}{\sin \theta} = \frac{a}{\sin \alpha} \Rightarrow \sin \alpha = \frac{a \sin \theta}{c}$$

$$\alpha = 10.8^\circ$$

$$\beta = 180 - \theta - \alpha = 141.2^\circ$$

$$\frac{c}{\sin \theta} = \frac{b}{\sin \beta} \Rightarrow b = 200.3 \text{ mm}$$

6. Determine the measures of angles A, B and C.



FIND SIDE LENGTHS

$$AB^2 = (9-0)^2 + (1.2-0.8)^2 \Rightarrow AB = \underline{9.0089 \text{ m}}$$

$$AC^2 = (9-5.3)^2 + (1.2-12)^2 \Rightarrow AC = \underline{11.416 \text{ m}}$$

$$BC^2 = (0-5.3)^2 + (0.8-12)^2 \Rightarrow BC = \underline{12.3907 \text{ m}}$$

USE LOC TO FIND ANGLES

$$AB^2 = AC^2 + BC^2 - 2 \cdot AC \cdot BC \cdot \cos C$$

$$C = \underline{44.2^\circ}$$

$$AC^2 = AB^2 + BC^2 - 2 \cdot AB \cdot BC \cdot \cos B$$

$$B = \underline{62.1^\circ}$$

$$BC^2 = AB^2 + AC^2 - 2 \cdot AB \cdot AC \cdot \cos A$$

$$A = \underline{73.6^\circ}$$

