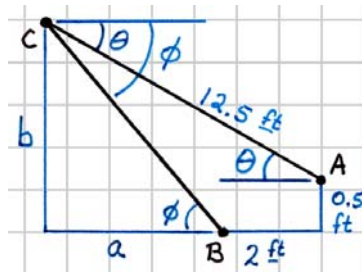


1-53

$$a = 12.5 \cos \theta - 2$$

$$b = 12.5 \sin \theta + 0.5$$

$$\phi = \tan^{-1} \frac{b}{a}$$



From a free-body diagram of the truck box,  
the equations of equilibrium give

$$\rightarrow \Sigma F_x = 0: \quad A_x - C \cos \phi = 0$$

$$\uparrow \Sigma F_y = 0: \quad A_y + C \sin \phi - 22,000 = 0$$

$$\circlearrowleft \Sigma M_A = 0: \quad 8.5(22,000 \cos \theta) - 2.5(22,000 \sin \theta) - 12.5[C \sin(\phi - \theta)] = 0$$

$$C = \frac{187,000 \cos \theta - 55,000 \sin \theta}{12.5 \sin(\phi - \theta)}$$

$$A_x = C \cos \phi$$

$$A_y = 22,000 - C \sin \phi$$

$$A = \sqrt{A_x^2 + A_y^2}$$

