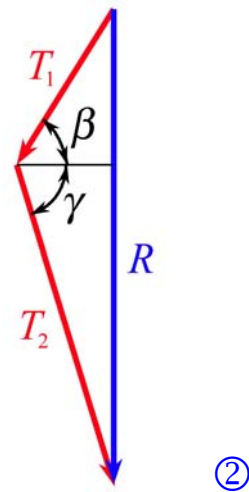
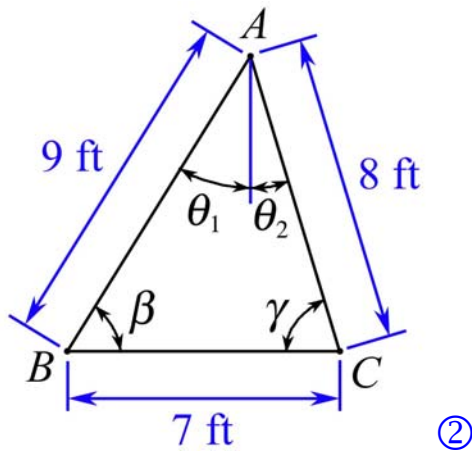
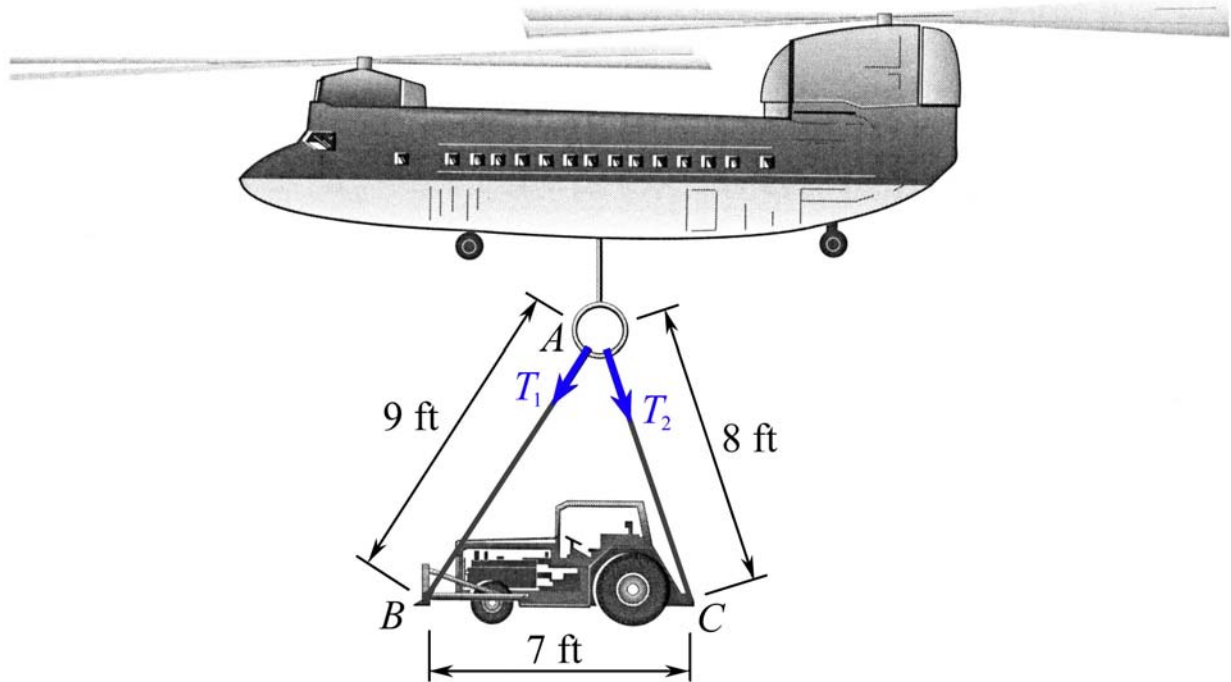


MEEG 2003 Quiz #2.m04.073

A tractor is being transported by a helicopter as shown. If the tensile force T_1 in cable AB is 3 kips and the resultant of T_1 and the tensile force T_2 in cable AC is vertical, determine the magnitude T_2 .



$$8^2 = 7^2 + 9^2 - 2(7)(9)\cos \beta \quad \therefore \beta = 58.4119^\circ \quad \textcircled{2}$$

$$9^2 = 7^2 + 8^2 - 2(7)(8)\cos \gamma \quad \therefore \gamma = 73.3985^\circ \quad \textcircled{2}$$

$$T_1 = 3 \text{ kips} \quad T_1 \cos \beta = T_2 \cos \gamma \quad \therefore T_2 = 5.50 \text{ kips} \quad \textcircled{2}$$