Problem 2.7  A stake is pulled out of the ground by means of two ropes as shown. (a) Knowing that $\alpha = 30^\circ$, determine by trigonometry the magnitude of the force $P$ so that the resultant force exerted on the stake is vertical. (b) What is the corresponding resultant of the magnitude?

\[\gamma = 180 - 25 - \alpha = 125^\circ\]

\[\frac{A}{\sin \alpha} = \frac{P}{\sin 25^\circ} = \frac{R}{\sin \gamma}\]

\[P = \frac{A \sin 25^\circ}{\sin \alpha} = 101.4 \text{ N}\]

\[R = \frac{A \sin \gamma}{\sin \alpha} = 196.6 \text{ N}\]