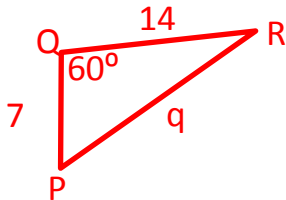


1. Solve the triangle for all missing angles and sides.

a) Given the following information about ΔPQR , solve the triangle. $m\angle Q = 60^\circ$, $r = 7$ cm, $p = 14$ cm

Draw a Diagram



$$q^2 = 7^2 + 14^2 - 2(7)(14)\cos 60$$

$$q \approx 12.12$$

$$\frac{\sin 60}{12.12} = \frac{\sin R}{7}$$

$$\frac{7\sin 60}{12.12} = \frac{12.12 \sin R}{12.12}$$

$$\sin R = \frac{7 \sin 60}{12.12}$$

$$R = \sin^{-1}\left(\frac{7 \sin 60}{12.12}\right) \approx 30^\circ$$

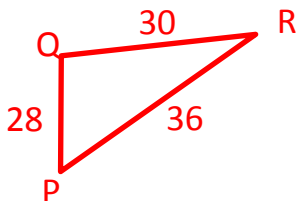
$$Q = 12.12$$

$$\angle R = 30^\circ$$

$$\angle P = 90^\circ$$

b) Given the following information about ΔPQR , solve the triangle. $p = 30$ cm, $r = 28$ cm, $q = 36$ cm

Draw a Diagram



$$36^2 = 30^2 + 28^2 - 2(30)(28)\cos Q$$

$$\frac{-388}{-1680} \approx \frac{-1680\cos Q}{-1680}$$

$$Q = \cos^{-1}\left(\frac{388}{1680}\right) \approx 77^\circ$$

$$\frac{\sin R}{28} = \frac{\sin 77}{36}$$

$$\frac{36\sin R}{36} = \frac{28 \sin 77}{36}$$

$$\sin R = \frac{28 \sin 77}{36}$$

$$R = \sin^{-1}\left(\frac{28 \sin 77}{36}\right) \approx 49^\circ$$

$$m\angle P = 180 - 77 - 49 = 54$$

$$\angle Q = 77^\circ$$

$$\angle R = 49^\circ$$

$$\angle P = 54^\circ$$