

Use the Law of Sines:

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

- A) **If two angles and a side of a triangle are known**
- B) **If two sides and an angle opposite one of them are known**

Use the Law of Cosines:

$$c^2 = a^2 + b^2 - 2ab \cos C$$

- A) **If two sides and the included angle are known**

Draw a picture, determine which Law should be applied and solve the problems.

1. In triangle ABC, angle A measures 50 degrees, angle B measures 70 degrees, and side AC measures 12 inches. Find the length of side BC.
2. Triangle DEF has angle D measuring 30 degrees, angle E measuring 90 degrees, and side DE measuring 8 meters. Determine the length of side DF.
3. In triangle XYZ, angle X measures 45 degrees, angle Y measures 60 degrees, and side XY measures 10 centimeters. Find the length of side YZ.
4. Triangle PQR has angle P measuring 80 degrees, angle Q measuring 50 degrees, and side PR measuring 15 inches. Determine the length of side PQ.
5. In triangle ABC, side AB measures 7 units, side BC measures 9 units, and angle C measures 60 degrees. Find the length of side AC.
6. Triangle DEF has side DE measuring 10 meters, side EF measuring 12 meters, and angle F measuring 45 degrees. Determine the length of side DF.
7. In triangle XYZ, side XY measures 8 centimeters, side YZ measures 12 centimeters, and angle Y measures 30 degrees. Find the length of side XZ.
8. Triangle PQR has side PQ measuring 15 inches, side QR measuring 17 inches, and angle Q measuring 90 degrees. Determine the length of side PR.