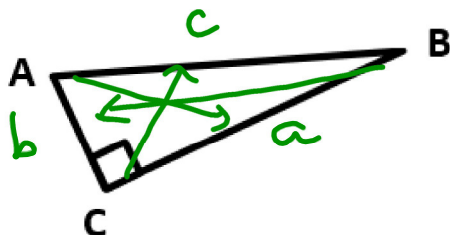


To “Solve” a right triangle means to find all missing sides and angles.

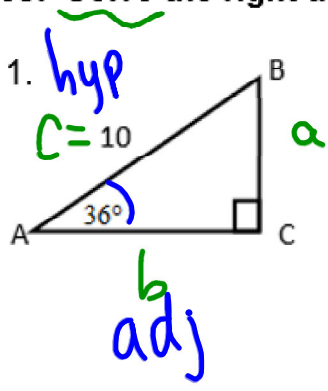
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We will use the skills from the chapter, and recall that the acute angles of a right triangle add up to 90°.

In general, sides are named by using the vertex that is opposite to it. Label sides a, b, and c below



Examples: Solve the right triangles by finding all the missing angles and side lengths.



SOHCAHTOA

$$\sin 36 = \frac{a}{10}$$

~~$$\frac{.5878}{1} = \frac{a}{10}$$~~

$$a = (10)(.5878)$$

$$a = 5.9$$

$$\cos 36 = \frac{b}{10}$$

~~$$\frac{.8090}{1} = \frac{b}{10}$$~~

$$b = (10)(.8090)$$

$$b = 8.1$$

$$a = \underline{5.9}$$

$$b = \underline{8.1}$$

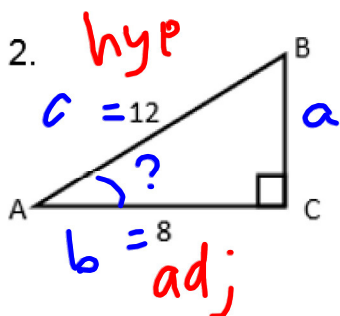
$$c = \underline{10}$$

$$m\angle A = \underline{36^\circ}$$

$$m\angle B = \underline{54^\circ}$$

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Examples: Solve the right triangles by finding all the missing angles and side lengths.



$$\cos A = \frac{8}{12}$$

$$A = \cos^{-1}\left(\frac{8}{12}\right)$$

$$A = 48.2$$

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S O C A T A

$$a = \underline{8.9}$$

$$b = \underline{8}$$

$$c = \underline{12}$$

$$m\angle A = \underline{48.2^\circ}$$

$$m\angle B = \underline{41.8^\circ}$$

$$a^2 + b^2 = c^2$$

$$a^2 + 8^2 = 12^2$$

$$a^2 + 64 = 144$$

$$\begin{array}{r} -64 \quad -64 \\ \hline \sqrt{a^2} = \sqrt{80} \\ a = 8.9 \end{array}$$