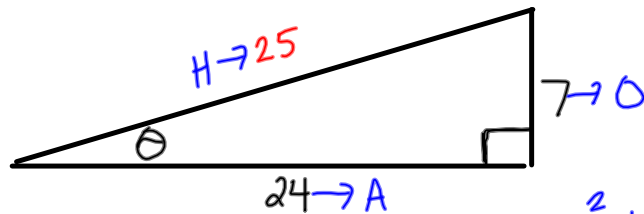


Sec. 9.1

Ex 1: Evaluate the six trig functions of the angle  $\theta$ .

SOHCAHTOA



$$\sin \theta = \frac{O}{H} = \frac{7}{25}$$

$$\csc \theta = \frac{25}{7}$$

$$\cos \theta = \frac{A}{H} = \frac{24}{25}$$

$$\sec \theta = \frac{25}{24}$$

$$\tan \theta = \frac{O}{A} = \frac{7}{24}$$

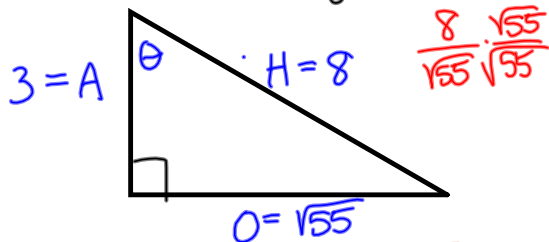
$$\cot \theta = \frac{24}{7}$$

$$\begin{aligned} a^2 + b^2 &= c^2 \\ (O^2 + A^2 &= H^2) \\ 7^2 + 24^2 &= H^2 \\ 49 + 576 &= H^2 \\ 625 &= H^2 \\ 25 &= H \end{aligned}$$

Ex 2: Find the values of the other five trigonometric functions of  $\theta$ , given

$$* \frac{1}{\sqrt{55}} \cdot \frac{\sqrt{55}}{\sqrt{55}} = \frac{\sqrt{55}}{55}$$

$$\cos \theta = \frac{3}{8} = \frac{A}{H}$$



$$\sin \theta = \frac{O}{H} = \frac{\sqrt{55}}{8}$$

$$\csc \theta = \frac{8\sqrt{55}}{55}$$

$$\cos \theta = \frac{A}{H} = \frac{3}{8}$$

$$\sec \theta = \frac{8}{3}$$

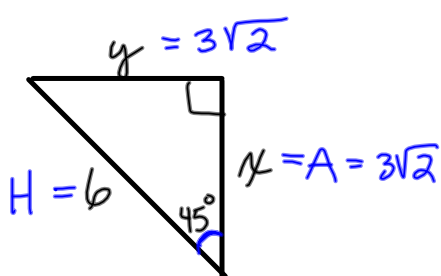
$$\tan \theta = \frac{O}{A} = \frac{\sqrt{55}}{3}$$

$$\cot \theta = \frac{3\sqrt{55}}{55}$$

SOHCAHTOA

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 3^2 + b^2 &= 8^2 \\ 9 + b^2 &= 64 \\ -9 & \quad -9 \\ \hline b^2 &= 55 \\ b &= \sqrt{55} \end{aligned}$$

Ex 3: Find the values of  $x$  and  $y$



SOHCAHTOA

$$\cos \theta = \frac{A}{H}$$

$$\cos 45^\circ = \frac{x}{6}$$

$$x = 6 \cos 45^\circ$$

$$x = \frac{6 \cdot \sqrt{2}}{1 \cdot 2}$$

$$x = 3\sqrt{2}$$

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

$$(3\sqrt{2})^2 + y^2 = 6^2$$

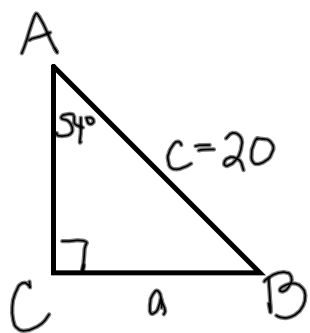
$$\begin{array}{r} 18 + y^2 = 36 \\ -18 \quad -18 \\ \hline \end{array}$$

$$y^2 = 18 \quad \text{②}$$

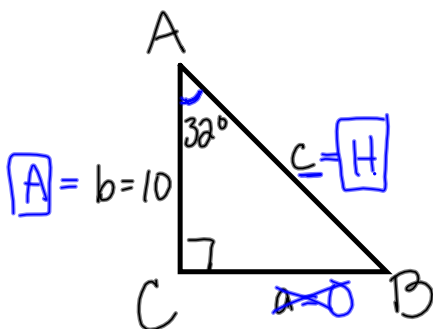
$$y = 3\sqrt{2}$$

if  $x = 3\sqrt{2}$

Ex 4: Solve  $\triangle ABC$



Ex 4: Solve  $\triangle ABC$



$$\textcircled{1} \quad \begin{aligned} A &= 32^\circ \\ B &= 58^\circ \\ C &= 90^\circ \end{aligned}$$

$$\textcircled{2} \quad \begin{aligned} a &= 6.25 \\ b &= 10 \end{aligned}$$

$$\textcircled{3} \quad c =$$

$$\textcircled{1} \quad \begin{array}{r} 180 \\ -90 \\ \hline 90 \\ -32 \\ \hline 58 \end{array}$$

SOHCAHTOA  
 $\downarrow$     $\downarrow$     $\downarrow$   
 CSC   sec   cot

$$\textcircled{2} \quad \begin{aligned} a &= 6.25 \\ \tan \theta &= \frac{O}{A} \\ \tan 32^\circ &= \frac{a}{10} \end{aligned}$$

$$\begin{aligned} a &= 10 \tan 32^\circ \\ a &\approx 6.25 \end{aligned}$$

$$\textcircled{3} \quad \begin{aligned} c &= \\ \cos \theta &= \frac{A}{H} \\ \cos 32^\circ &= \frac{10}{c} \end{aligned}$$

$$\frac{c \cos 32^\circ}{\cos 32^\circ} = \frac{10}{\cos 32^\circ}$$

$$c = \frac{10}{\cos 32^\circ}$$

$$c = 11.79$$