

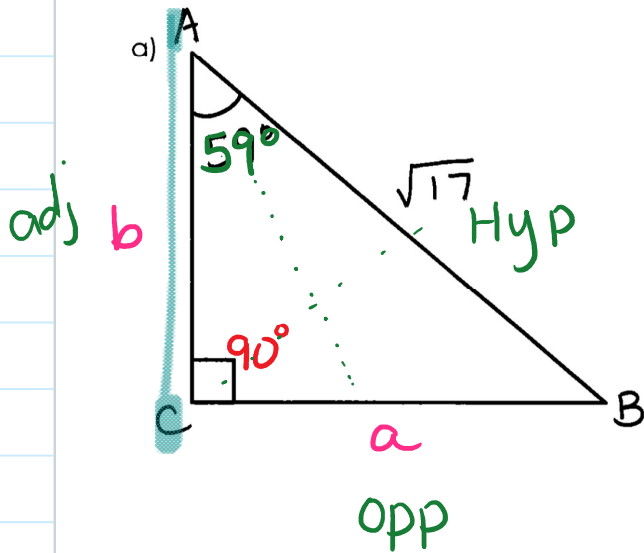
1.5 Applying Trig Ratios

Wednesday, June 15, 2022 1:15 PM

1.5 Applying the Trigonometric Ratios

When we calculate the measures of all the angles and all the sides in a right triangle, we Solve the triangle.

EXAMPLE 1 : Solve. Give the measures to the nearest tenth.



$$\begin{aligned}\angle ABC &= \angle B \\ \angle B &= 180^\circ - 90^\circ - 59^\circ \\ \angle B &= 31^\circ\end{aligned}$$

$$\begin{aligned}\angle ABC &= 31^\circ \\ b = \text{side } AC &= 2.1 \\ a = \text{side } BC &= \end{aligned}$$

side AC = b

~~SOH CAHTOA~~

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

$$\cos 59^\circ = \frac{b}{\sqrt{17}}$$

$$\sqrt{17} (\cos 59^\circ) = \left(\frac{b}{\sqrt{17}}\right) \sqrt{17}$$

$$\sqrt{17} (\cos 59^\circ) = b$$

$$\sqrt{17} (.5150) = b$$

$$2.1 = b$$

side BC = a

~~SOH CAHTOA~~

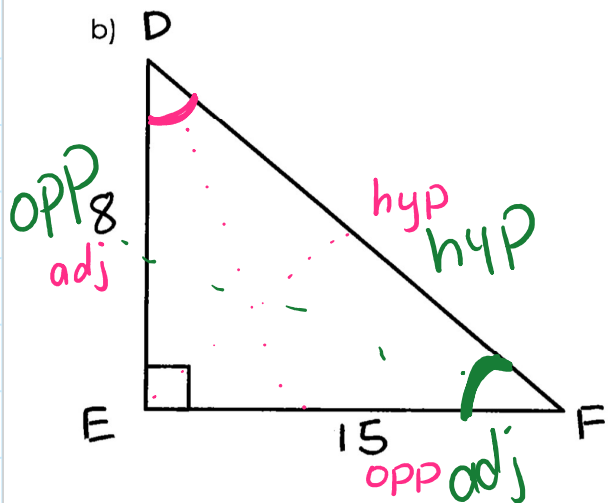
$$\sin \theta = \frac{O}{H}$$

$$\sin 59^\circ = \frac{a}{\sqrt{17}}$$

$$\sqrt{17} (\sin 59^\circ) = \left(\frac{a}{\sqrt{17}}\right) \sqrt{17}$$

$$\sqrt{17} (.8572) = a$$

$$3.5 = a$$



$$\angle EDF = \angle D$$

~~SOHCAHTOA~~

$$\theta = \tan^{-1}\left(\frac{O}{A}\right)$$

$$\theta = \tan^{-1}\left(\frac{15}{8}\right)$$

$$\theta = \tan^{-1}(1.875)$$

$$\theta = 61.9^\circ$$

Find DF Hypotenuse

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

$$8^2 + 15^2 = c^2$$

$$64 + 225 = c^2$$

$$289 = c^2$$

$$\sqrt{289} = c$$

$$17 = c$$

$$\angle EDF = 61.9$$

$$\angle EFD =$$

$$\text{side DF} = 17$$

$$\angle EFD = \angle F$$

~~SOHCAHTOA~~

$$\theta = \tan^{-1}\left(\frac{O}{A}\right)$$

$$\theta = \tan^{-1}\left(\frac{8}{15}\right)$$

$$\theta = \tan^{-1}(.5333)$$

$$\theta = 28.1^\circ$$

Practice: p.111 #3a, 4a, 5a, 6a, 7, 8, 10, 12a, 15

Mrs. Shaw

F. & P.-C. 10