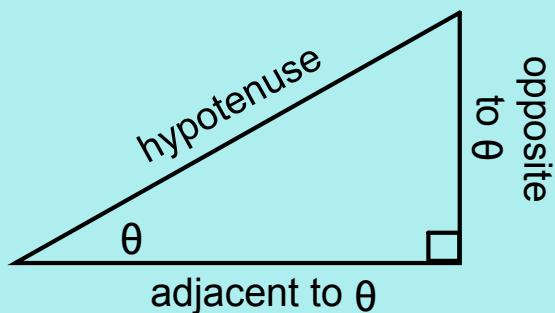


For any angle of interest, there are three (3) primary trigonometric ratios.

$$\text{sine of } \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\text{cosine of } \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\text{tangent of } \theta = \frac{\text{opposite}}{\text{adjacent}}$$



S o h C a h T o a

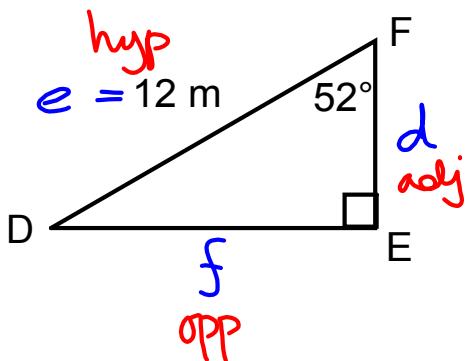
Dec 7-9:58 PM

Solving Right Triangles

May 12, 2016

Recall: Trigonometric ratios can be used to determine side lengths or angle measures.

Ex.1 Calculate the height of the triangle shown below.



~~Soh Cah Toa~~

$$\cos 52^\circ = \frac{d}{12}$$

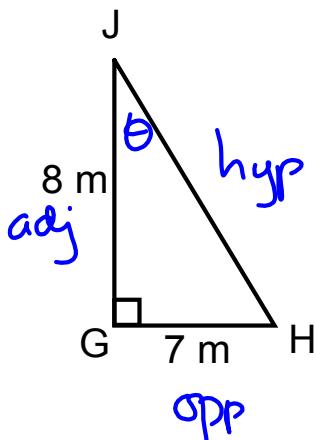
$$d = 12 \cos 52^\circ$$

$$d \approx 7.4$$

∴ the height is 7.4 m

Dec 9-9:41 PM

Ex.2 Determine the measure of angle J in the triangle shown below.



~~Soh~~ ~~Cah~~ ~~Toa~~

$$\tan \theta = \frac{7}{8}$$

$$\theta = \tan^{-1}\left(\frac{7}{8}\right)$$

$$\theta \doteq 41.2^\circ$$

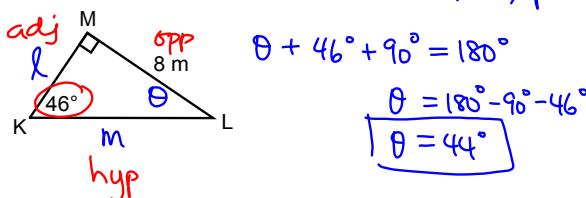
May 11-3:47 PM

To **solve a triangle** means to find all the missing sides and angles.

For right triangles use Pythagorean Theorem and/or the primary trigonometric ratios. Can also use angle theorems where possible.

Ex.3 Solve the triangle shown below.

θ, α, β



~~Soh~~ ~~Cah~~ ~~Toa~~

$$\frac{\sin 46^\circ}{1} = \frac{8}{m}$$

$$\frac{m \sin 46^\circ}{\sin 46^\circ} = \frac{8}{\sin 46^\circ}$$

$$m = \frac{8}{\sin 46^\circ}$$

$$m \doteq 11.1213$$

$$m \doteq 11.1$$

$$\frac{\tan 46^\circ}{1} = \frac{8}{l}$$

$$l \tan 46^\circ = 8$$

$$l = \frac{8}{\tan 46^\circ}$$

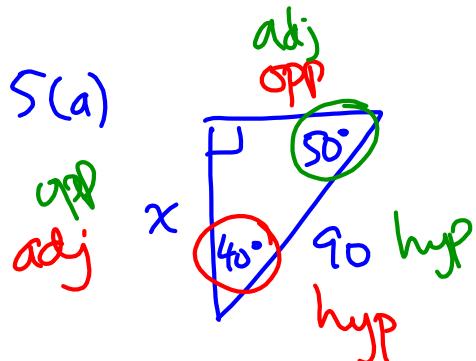
$$l \doteq 7.7255$$

$$l \doteq 7.7$$

May 11-3:58 PM

Assigned Work:

p.403 #1a, 2a, 3, 5a, 6a, 7a, 8a, 10, 12, 13ab

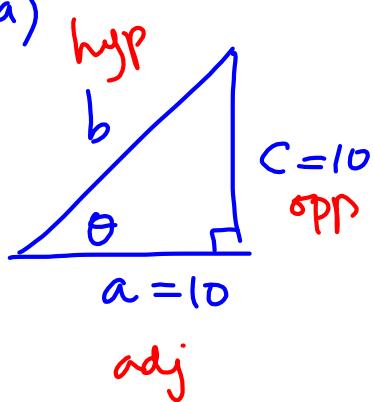


Soh Cah Toa

$$\cos 40^\circ = \frac{x}{90}$$

May 11-4:03 PM

6(a)



$$a = 10$$

$$c = 10$$

$$\tan \theta = \frac{10}{10}$$

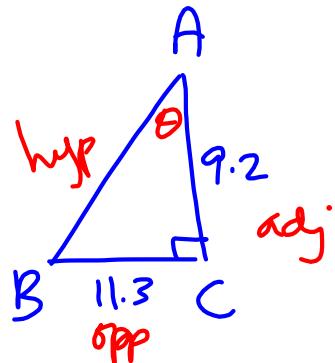
$$\theta = \tan^{-1}(1)$$

$$\theta = 45^\circ$$

Soh Cah Toa

May 13-2:00 PM

8(a)



$$\tan \theta = \frac{11.3}{9.2}$$

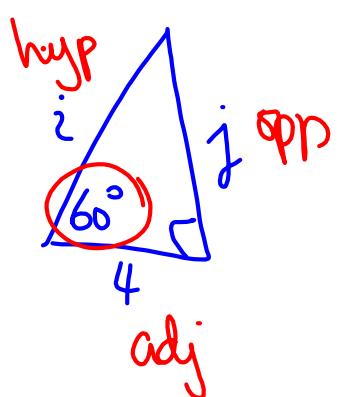
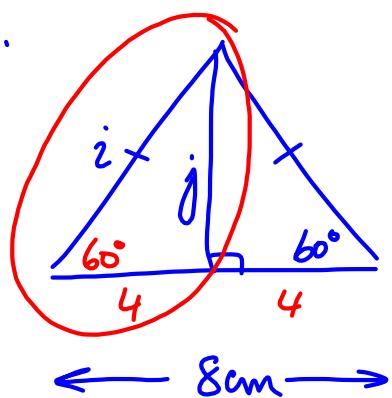
Soh Cah Toa

$$\theta = \tan^{-1}\left(\frac{11.3}{9.2}\right)$$

$$\theta \doteq 50.8^\circ$$

May 13-2:02 PM

10.



Soh Cah Toa
v? v? v? v?
h o

May 13-2:04 PM