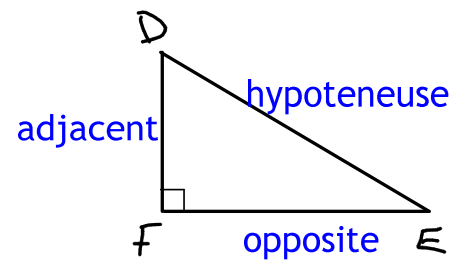


1.1 Primary Trig Ratios (Soh Cah Toa)

1. Label this triangle as D,E,F.

Note that the corners (vertices) are labeled with CAPITALS and the opposite sides are lower case.

2. Label each side accordingly for angle D



3. State the primary trig ratios for angle D

SOH CAH TOA

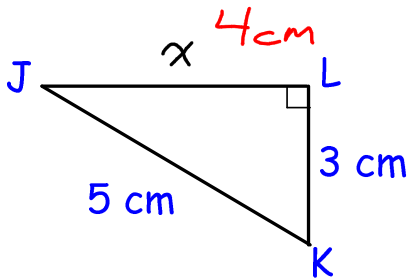
$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

Ex. 1: Write the primary trig ratios for angle J and for angle K.

**** you are just setting up the ratio here NOT solving anything****



$$5^2 = 3^2 + x^2$$

$$x^2 = 5^2 - 3^2$$

$$x^2 = 16$$

$$x = 4$$

$$\sin K = \frac{4}{5}$$

$$\cos K = \frac{3}{5}$$

$$\tan K = \frac{4}{3}$$

$$\sin J = \frac{3}{5}$$

$$\cos J = \frac{4}{5}$$

$$\tan J = \frac{3}{4}$$

Why don't we do angle L?

Ex. 2: Evaluate using your calculator. Round your answer to 4 decimal places.

a) $\sin 18^\circ \doteq 0.3090$

b) $\tan 45^\circ = 1$

Notes:

* Your calculator gives you the ratio as a decimal instead of a fraction

* Make sure your calculator is set to degrees

What does this answer tell us?

Ex. 3: Find the measure of the angle. Round your answer to the nearest tenth of a degree (1 decimal place).

a) $\cos A = 0.9063$

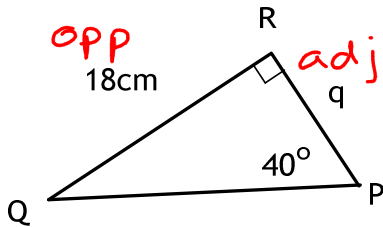
$$A = \cos^{-1}(0.9063) \\ \doteq 25.0^\circ$$

b) $\sin Q = \frac{8}{9}$

$$Q = \sin^{-1}\left(\frac{8}{9}\right) \\ \doteq 62.7^\circ$$

Ex. 4: Find the length of the indicated side. Round to 2 decimal places.

a) Find side q



$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

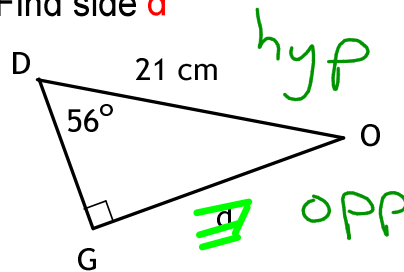
$$\tan 40^\circ = \frac{18}{q}$$

$$q = \frac{18}{\tan 40^\circ}$$

$$\approx 21.45$$

$$\therefore q = 21.45 \text{ cm}$$

b) Find side d



Which trig ratio?

Given 56° opp & hyp

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\sin 56^\circ = \frac{d}{21}$$

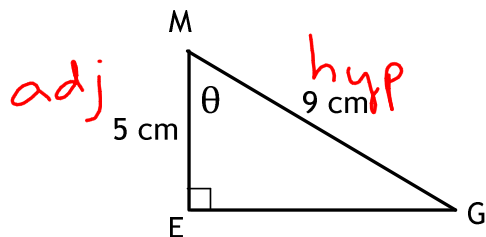
$$21 (\sin 56^\circ) = d$$

$$d = 17.41$$

$$\therefore d = 17.41 \text{ cm}$$

Ex. 5: Find the measure of the indicated **angle**.
Round to the nearest tenth of a degree.

a) Find angle **M**



$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\cos \theta = \frac{5}{9}$$

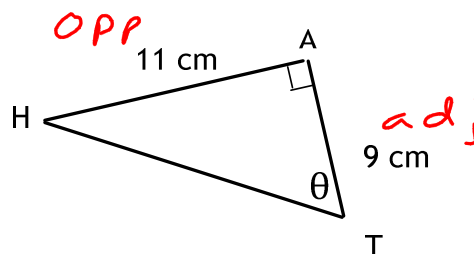
$$\theta = \cos^{-1}\left(\frac{5}{9}\right)$$

$$\approx 56.2510$$

$$\approx 56.3$$

$$\therefore \theta = 56.3^\circ$$

b) Find angle **T**



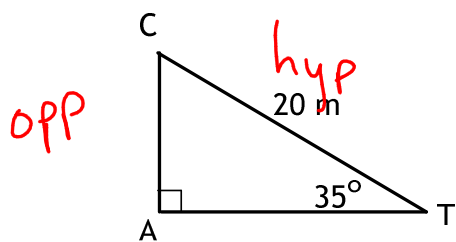
$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\tan \theta = \frac{11}{9}$$

$$\theta = \tan^{-1}\left(\frac{11}{9}\right)$$

$$\approx 50.7^\circ$$

Ex.6: Solve the following triangle.



$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\sin 35^\circ = \frac{\text{opp}}{20}$$

Practice:
pg. 13 #1-3, 6-8a, 9-12

