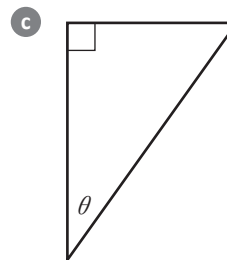
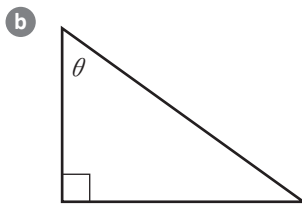
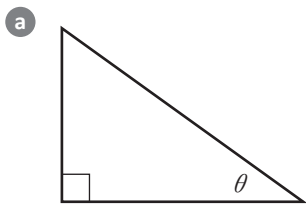


Trigonometry: Using the ratios

Name: _____

1. Label the opposite, adjacent and hypotenuse in each of the following triangles.



2. An easy way to remember the trigonometric ratios is **SOH-CAH-TOA**.

Complete the following to show what this is short for:

$$\sin \theta = \frac{\text{opp}}{\text{hyp}} \quad \cos \theta = \frac{\text{adj}}{\text{hyp}} \quad \tan \theta = \frac{\text{opp}}{\text{adj}}$$

3. Use a calculator to find the following (round to 2 decimal places):

a. $\sin 30^\circ =$

c. $\cos 60^\circ =$

e. $\tan 45^\circ =$

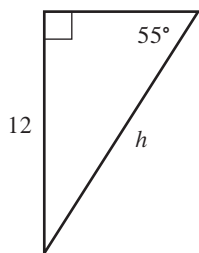
b. $\sin 75^\circ =$

d. $\cos 67^\circ =$

f. $\tan 10^\circ =$

4. The trigonometric ratios can be used to find unknown sides in a right-angled triangle.

e.g. Find the hypotenuse:



1. Label the diagram. $\theta = 55^\circ$
 (the angle we are interested in),
 12 is opposite and h is already
 labelled. The other side is adjacent.

2. Choose the trigonometric ratio.
 Since we know the opposite (12) and
 want to find the hypotenuse (h),
 we will use sin (SOH).

3. Substitute and solve.

$$\begin{aligned} \sin 55^\circ &= \frac{12}{h} \\ h &= \frac{12}{\sin 55^\circ} \\ &= \frac{12}{0.819\dots} \\ &= 14.6492\dots \end{aligned}$$

≈ 14.65 (2 decimal places)

Find the value of x in each of the following triangles using the three steps above.

