

# Use sine, cosine and tangent to find missing angles

1 Complete the calculations.

a)  $\sin 30^\circ = 0.5$

$\sin^{-1} 0.5 = \square^\circ$

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

$\tan^{-1} 1 = \square^\circ$

b)  $\cos 60^\circ = 0.5$

$\cos^{-1} 0.5 = \square^\circ$

d)  $\sin 90^\circ = 1$

$\sin^{-1} 1 = \square^\circ$

2 Which calculation would work out the value of  $\theta$ ? Tick your answers.

a)  $\sin \theta = 0.8$

$\sin 0.8$   
   $\cos 0.8$   
   $\tan 0.8$   
   $\sin^{-1} 0.8$   
   $\cos^{-1} 0.8$   
   $\tan^{-1} 0.8$

b)  $\cos \theta = 0.45$

$\sin 0.45$   
   $\cos 0.45$   
   $\tan 0.45$   
   $\sin^{-1} 0.45$   
   $\cos^{-1} 0.45$   
   $\tan^{-1} 0.45$

c)  $\tan \theta = 1.4$

$\sin 1.4$   
   $\cos 1.4$   
   $\tan 1.4$   
   $\sin^{-1} 1.4$   
   $\cos^{-1} 1.4$   
   $\tan^{-1} 1.4$

3 Use your calculator to find the value of  $\theta$  to the nearest degree.

a)  $\sin \theta = 0.2$

$\theta = \square^\circ$

c)  $\tan \theta = 1.7$

$\theta = \square^\circ$

e)  $\tan \theta = \frac{8}{5}$

$\theta = \square^\circ$

b)  $\cos \theta = 0.15$

$\theta = \square^\circ$

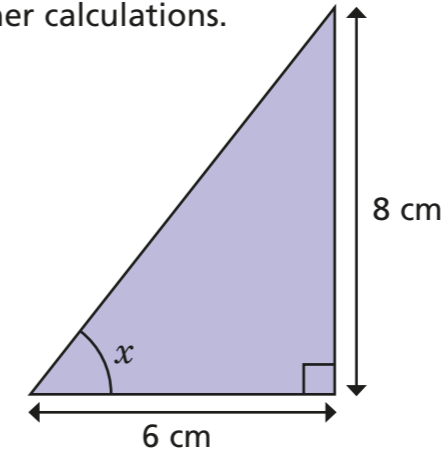
d)  $\sin \theta = 0.6$

$\theta = \square^\circ$

f)  $\cos \theta = \frac{2}{7}$

$\theta = \square^\circ$

4 Alex is calculating the size of angle  $x$ . Here are her calculations.



$$\tan x = \frac{6}{8}$$

$$x = \tan^{-1} \frac{6}{8}$$

$$x = 0.01^\circ$$

a) Alex has made two mistakes. Explain each mistake.

Mistake 1 \_\_\_\_\_

Mistake 2 \_\_\_\_\_

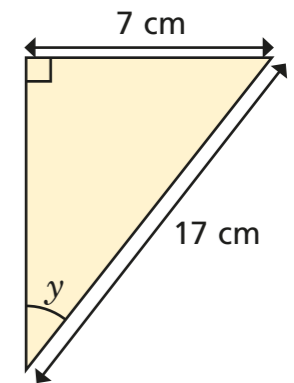
b) Find the size of angle  $x$  to the nearest degree.

$x = \square^\circ$

c) How could Alex have noticed her answer was incorrect when checking her solutions? Discuss it with a partner.

5 a) Work out the size of the angle marked  $y$ . Give your answer to 1 decimal place.

$y = \square^\circ$

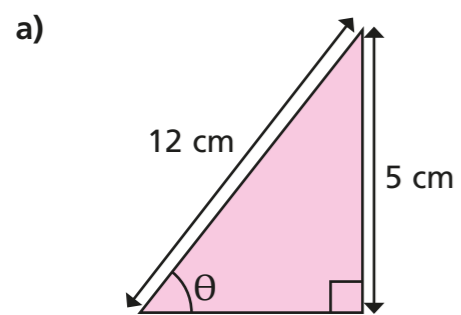


b) Ron says, "To find the other angle, I'd need to use trigonometry again."

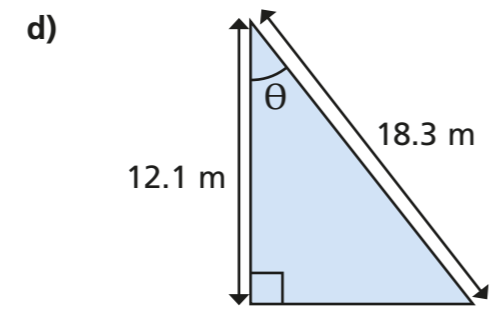
Do you agree? \_\_\_\_\_

Discuss it with a partner.

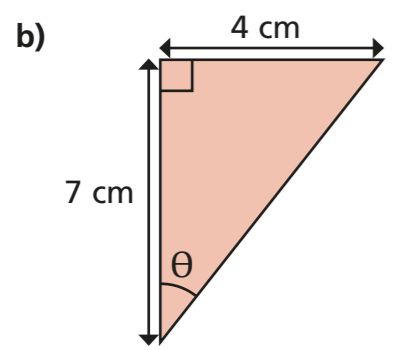
6 Find the size of angle  $\theta$  in each triangle.  
Give your answers to the nearest degree.



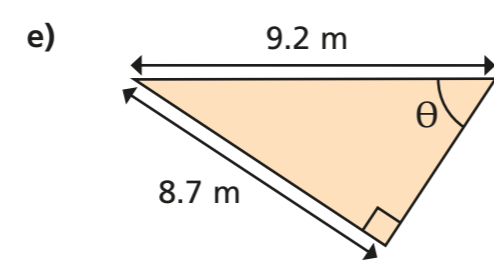
$\theta = \square^\circ$



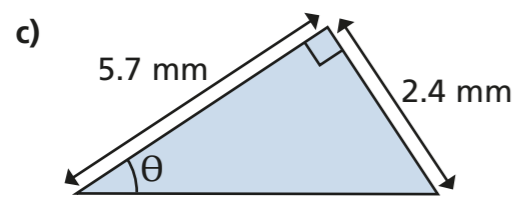
$\theta = \square^\circ$



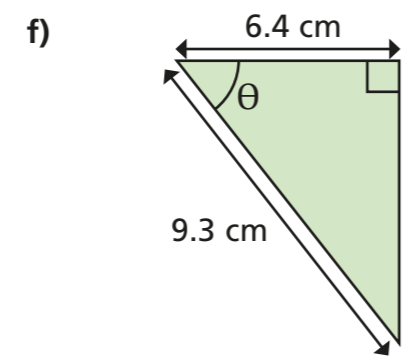
$\theta = \square^\circ$



$\theta = \square^\circ$



$\theta = \square^\circ$



$\theta = \square^\circ$

7 A ship sets sail north from point O.  
It sails for 45 km then turns due east and sails for 35 km to point P.  
a) Draw a sketch of the right-angled triangle formed by the path that the ship takes, and the line segment OP.



b) What is the bearing of point P from point O?  
Give your answer to the nearest degree.

8 Work out the size of angle ADC.

