Measuring the Earth

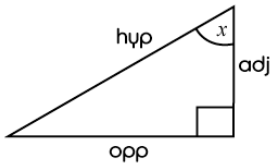
NAME: .....

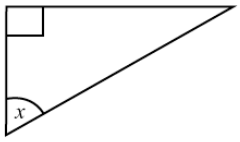
CLASS: .....

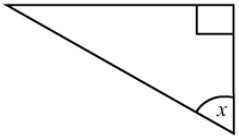
DATE: .....

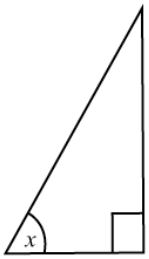
Basic

1) Mark the names hypotenuse (hyp), opposite (opp), adjacent (adj) on the correct side with respect to the angle marked x. (The first one has been done for you.)









2) Calculate the following (give answers to three decimal places):

a) sin 28° b) cos 50° c) tan 52° d) sin 19°

3) Calculate the value for the angle x (giving answers to nearest degree):

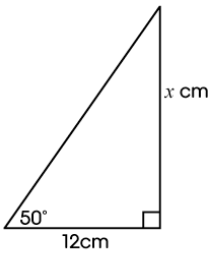
a) $\sin x = \frac{2}{3}$ b) $\cos x = \frac{4}{5}$ c) $\tan x = \frac{13}{5}$ d) $\sin x = \frac{2}{7}$

Measuring the Earth

Basic

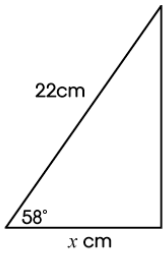
4) Using the given trig ratio calculate the length of the side labelled x.

a)



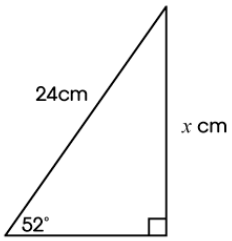
tan ratio

b)



cos ratio

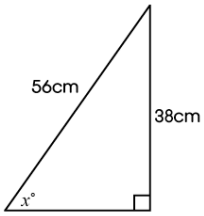
c)



sin ratio

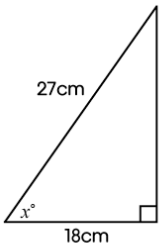
5) Using the given trig ratio calculate the size of the angle labelled x.

a)



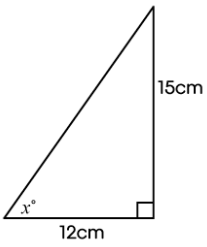
sin ratio

b)



cos ratio

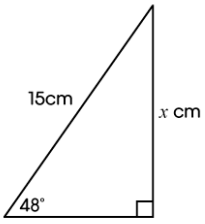
c)



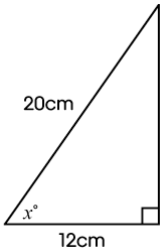
tan ratio

6) Calculate the value of x.

a)



b)



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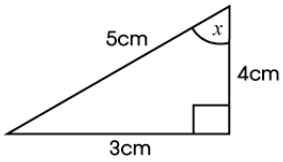
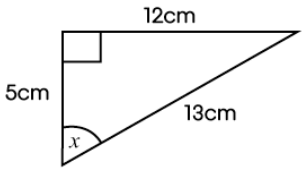
Core

1) What are the sin, cos and tan ratios for the angle x in the following triangles?

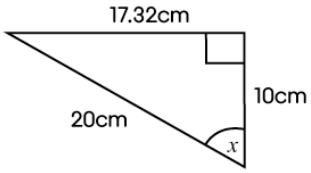
a)



b)

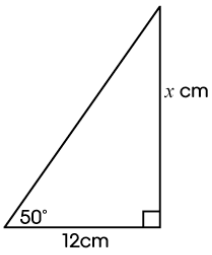


c)



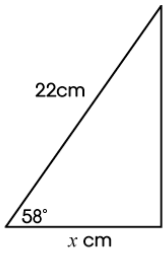
2) Calculate the length of the side labelled x.

a)



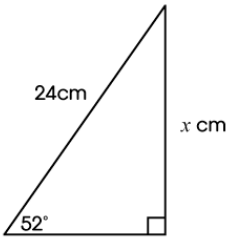
tan ratio

b)



cos ratio

c)



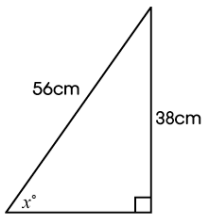
sin ratio

Measuring the Earth

Core

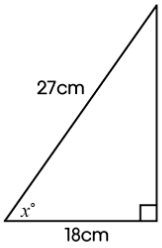
3) Calculate the size of the angle labelled x.

a)



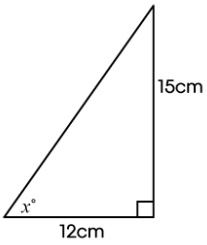
sin ratio

b)



cos ratio

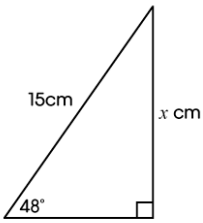
c)



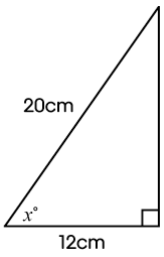
tan ratio

4) Calculate the value of x.

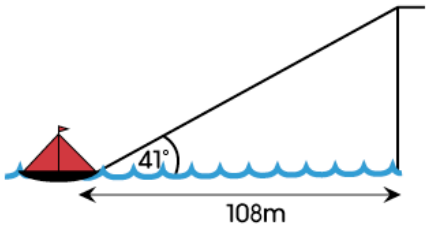
a)



b)



5) A ship at sea is 108m from the foot of a cliff. The angle of elevation of the top of the cliff from the ship is 41°, as shown in the diagram. Find the height of the cliff.



Measuring the Earth

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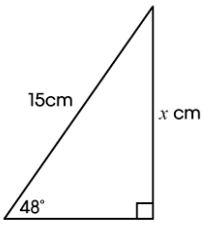
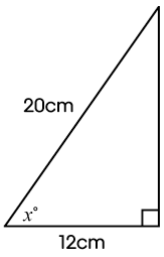
Advanced

1) Calculate the value of x.

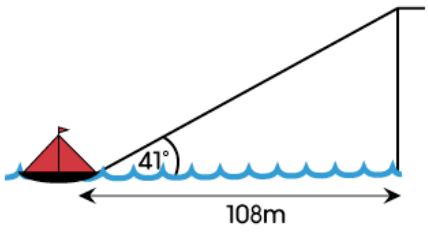
a)



b)



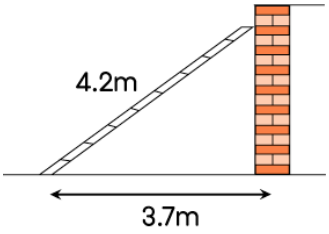
2) A ship at sea is 108m from the foot of a cliff. The angle of elevation of the top of the cliff from the ship is 41°, as shown in the diagram. Find the height of the cliff.



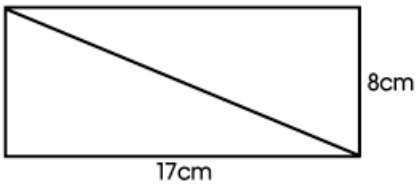
Measuring the Earth

Advanced

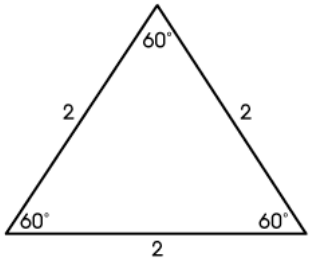
3) A ladder 4.2m long is leaning against a wall. The foot of the ladder is 3.7m from the wall. What angle does the ladder make with the ground?



4) Find the sizes of all the angles in the rectangle shown and the length of the diagonal.



5) Using the given equilateral triangle, calculate an exact value for:



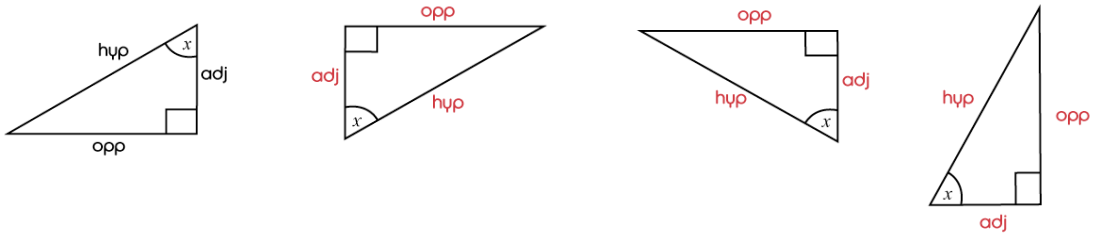
a) sin 60° b) cos 60° c) tan 60° d) sin 30° e) cos 30° f) tan 30°

Measuring the Earth

ANSWERS

Basic

1)



2) a) 0.469 b) 0.643 c) 1.280 d) 0.326

3) a) 42° b) 37° c) 69° d) 17°

4) a) 14.3cm b) 11.7cm c) 18.9cm

5) a) 43° b) 48° c) 51°

6) a) 11.1cm b) 53°

Core

1) a) $\sin x = \frac{3}{5}$ $\cos x = \frac{4}{5}$ $\tan x = \frac{3}{4}$ b) $\sin x = \frac{12}{13}$ $\cos x = \frac{5}{13}$ $\tan x = \frac{12}{5}$

c) $\sin x = \frac{17.32}{20}$ $\cos x = \frac{1}{2}$ $\tan x = \frac{17.32}{10}$

2) a) 14.3cm b) 11.7cm c) 18.9cm

3) a) 42° b) 48° c) 51°

4) a) 11.1cm b) 53°

5) 93.9m

Advanced

1) a) 11.1cm b) 53°

2) 93.9m

3) 28°

4) 90°, 90°, 25°, 25°, 65°, 65°; length 18.8cm

5) a) $\frac{\sqrt{3}}{2}$ b) $\frac{1}{2}$ c) $\sqrt{3}$ d) $\frac{1}{2}$ e) $\frac{\sqrt{3}}{2}$ f) $\frac{1}{\sqrt{3}}$