Trigonometry (F)

A collection of 9-1 Maths GCSE Sample and Specimen questions from AQA, OCR, Pearson-Edexcel and WJEC Eduqas.
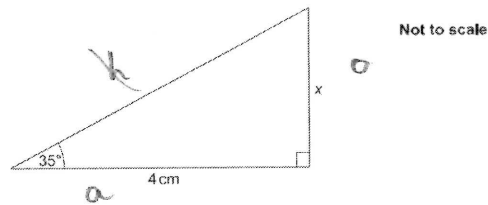
Name:	@mhorley
Total Marks:	

1. The diagram shows a right-angled triangle.

$$\tan(35°) = \frac{x}{4}$$

$$x = 4 \times \tan(35°)$$

$$x = 2.80083...$$

Not to scale

Calculate x.

2.8 .... cm [3]

2. Here are sketches of four triangles.

In each triangle

the longest side is exactly 1 cm

the other length is given to 2 decimal places.

(a) Circle the value of cos 50°
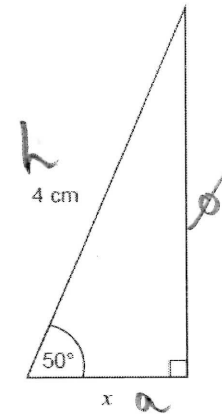to 2 decimal places.

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

0.77	0.53
(0.64)	0.86

$$= \frac{0.64}{1}$$

[1]

Not right-angled!

Not drawn accurately

(b) Work out the value of x.

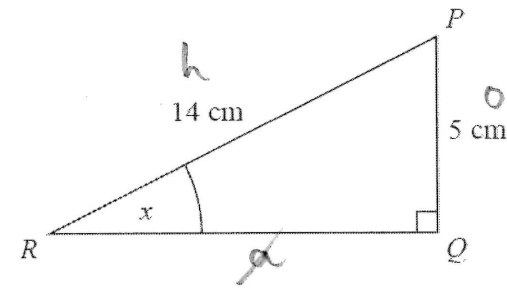**Not drawn accurately**

$$\cos 50° = \frac{x}{4}$$

$$x = 4 \cos 50°$$

$$x = 2.57115...$$

$$x = 2.6 cm$$

Give your answer to 1 decimal place.

[2]

3. PQR is a right-angled triangle.

$$\sin x = \frac{5}{14}$$

$$x = \sin^{-1}\left(\frac{5}{14}\right)$$

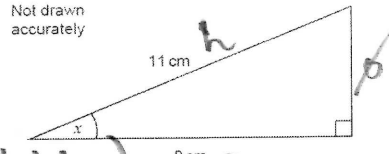$$x = 20.9248...°$$

Work out the size of the angle marked x.

Give your answer correct to 1 decimal place.

x = 20.9 ....° [2]
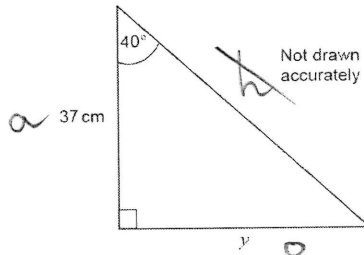
4. (a) Work out the size of angle x.

$\cos x = \dfrac{a}{h} = \dfrac{8}{11}$

$x = \cos^{-1}\left(\dfrac{8}{11}\right) = 43.3°\ (\text{to 1d.p.})$

Not drawn accurately

11 cm

8 cm a

[2]

(b) Work out length y.

40°

37 cm

Not drawn accurately

$\tan(40°) = \dfrac{y}{37}$

$y = 37\tan(40°)$

$y = 31.04668...$

$y = 31\text{ cm (to nearest cm)}$

[2]

5. A man is working out the height of a vertical tree.

The man is able to measure the angle of elevation of the top of the tree from his measuring instrument.

The measuring instrument is 1·8m above ground level.

When the man is standing 19m from the base of the tree, the angle he measures is 56°.

A sketch of this situation is shown below.

$\tan(56°) = \dfrac{o}{19}$

$o = 28.1686...$
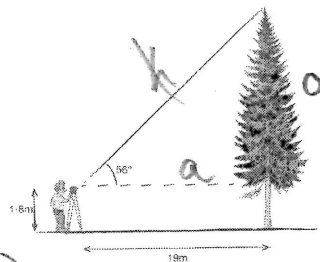
$= 28.2m\ (\text{to 1dp})$

Height of tree $= 28.2 + 1.8$

$= 30.0m\ (\text{to 1dp})$

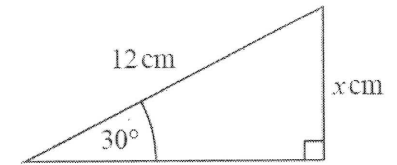Calculate the full height of the tree.

56°

1·8m

19m

Diagram not drawn to scale

[4]

6. Given that sin30° = 0.5,

work out the value of x. (NON CALCULATOR PAPER)

$\sin 30 = \dfrac{x}{12}$

$0.5 = \dfrac{x}{12}$

$\text{So}, x = 6\text{ cm}$
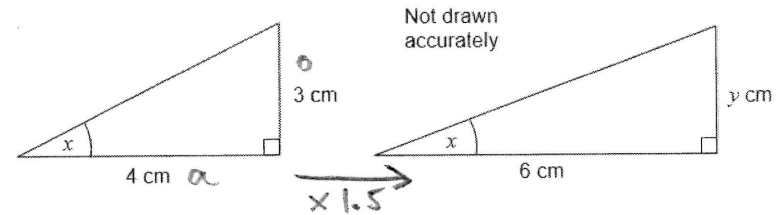
12 cm

x cm

30°

_____6 cm_____ [2]

7. These two right-angled triangles are similar.

Not drawn accurately

3 cm

x

4 cm a

× 1.5

6 cm

y cm

x

a) Write down the value of tan x.   Give your answer as a fraction.

$\tan x = \dfrac{3}{4}$

[1]

b) Work out the value of y.

$\dfrac{3}{4} = \dfrac{y}{6}$

$y = \dfrac{6 \times 3}{4}$

$y = \dfrac{18}{4} = \dfrac{9}{2}$

$y = 4.5\text{ cm}$

[2]