Trigonometry (H & 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. 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.

Diagram not drawn to scale
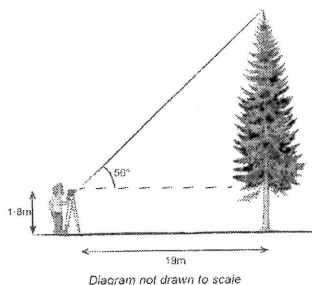
Calculate the full height of the tree.

[4]

2. Here are sketches of four triangles.

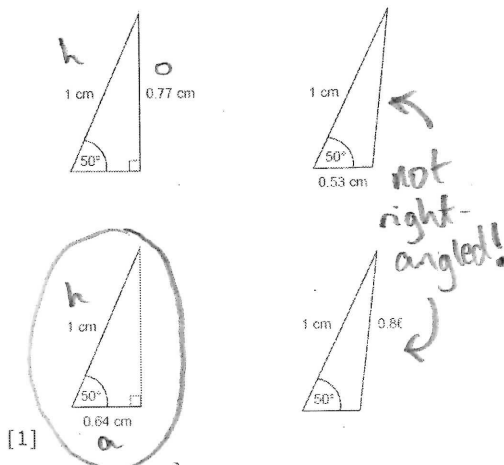In each triangle
   the longest side is exactly 1 cm
   the other length is given to 2 decimal places.

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

$\cos 50 = \dfrac{adj}{hyp}$
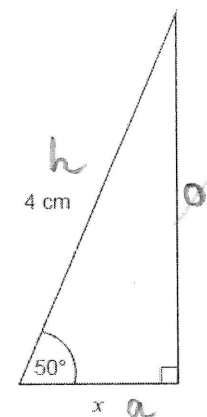
0.77   0.53

(0.64)   0.86

[1]

not right-angled!

(b) Work out the value of x.

Give your answer to 1 decimal place.

$\cos(50°) = \dfrac{x}{4}$

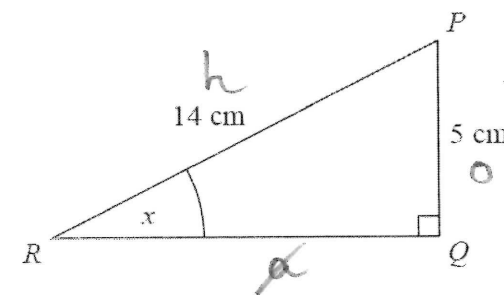$x = 4 \times \cos(50°)$

$= 2.571\ldots$

$x = 2.6\,cm$

Not drawn accurately

[2]

3. PQR is a right-angled triangle.

$\tan x = \dfrac{5}{14}$

$x = \tan^{-1}\left(\dfrac{5}{14}\right)$

$x = 19.7°$

Work out the size of the angle marked x.

Give your answer correct to 1 decimal place.

...................................° [2]

$19.7°$

4. Given that sin30° = 0.5,
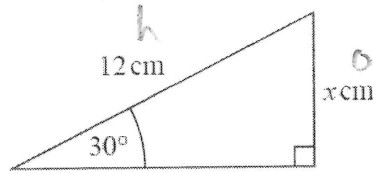
work out the value of x. (NON CALCULATOR PAPER)

$\sin 30° = \frac{o}{h} = \frac{x}{12}$

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

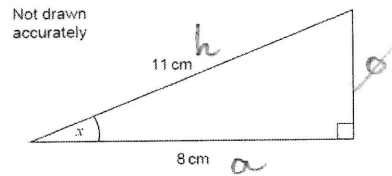$x = 0.5 \times 12$

$x = 6$

12 cm

h

x cm

o

30°

........6 cm........ [2]

5. (a) Work out the size of angle x.
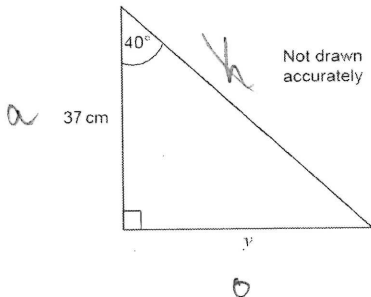
$\cos x = \frac{a}{h} = \frac{8}{11}$

$x = \cos^{-1}\left(\frac{8}{11}\right)$

$x = 43.341 ...$

$x = 43°$ (to nearest degree)

Not drawn accurately

11 cm h

x

8 cm a

o

[2]

(b) Work out length y.

$\tan 40° = \frac{y}{37}$

$y = 37 \tan 40°$

$y = 31.0466 ...$

$y = 31.0$ cm (to 1 dp)

40°

a   37 cm

h

Not drawn accurately

y

o

[2]

6. These two right-angled triangles are similar.

Not drawn accurately

3 cm

o

x

4 cm   a

y cm   o

x

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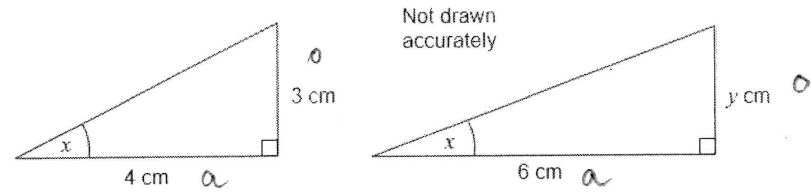
a) Write down the value of tan x.   Give your answer as a fraction.

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

[1]

b) Work out the value of y.

$\tan x = \frac{y}{6}$ $\frac{y}{6} = \frac{3}{4}$ → $y = \frac{18}{4}$ → $y = 4.5$ cm

[2]

7.