Delta 3
Unit 9 Review (Calculator)
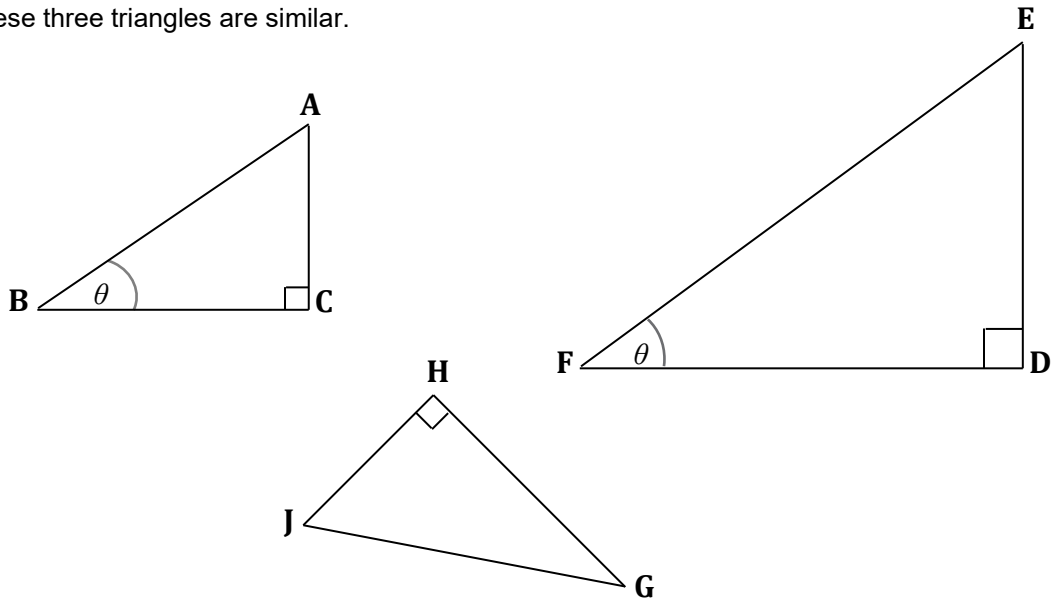# Trigonometry

How well did you do:

Trigonometry	Score = $\frac{}{50}$	

Topics/skills which need to be revisited:	Questions from the review	Further Practice from Delta 3
• Understand the ratios for sin, cos, tan and choose the correct one • Label sides correctly: hypotenuse, opposite, adjacent • Use sin/cos/tan to find a side length when the unknown is on the numerator of the ratio • Use sin/cos/tan to find a side length when the unknown is on the denominator of the ratio	• 1 • 2a • 2b • 4	• Learn key point p215 • P215 Q1 • P216 Q6,7 • P223 Q3
• Use sin/cos/tan to find an angle	• 3	• P217 Q7,8
• Interpret a more complicated diagram and use trigonometry to find the correct angle • Interpret a more complicated diagram and use trigonometry to find the correct missing length, when the unknown is on the denominator • Interpret a more complicated diagram and use trigonometry to find the correct missing length, when the unknown is on the numerator • Remember to think simply and use Pythagoras to find the correct missing length, if applicable • Justify your answer with clear communication • Use trigonometry (and Pythagoras) to solve a more complicated multi-step question, maintaining accuracy until the final answer	• 5a,7b • 5b • 8 • 6,7a • 7a,8 • 10	• P218 Q2 • P224 Q12c • P218 Q3 • P221 13a • Write more words! • P224 Q10,14
• Generate y values and draw the correct smooth/curvy shape of y=sin x or y=cos x • Interpret problem-solving questions in a graphical context	• 9a,b • 9c,d	• P211 Q3 P212 Q7 • P224 Q13b

1 These three triangles are similar.

a Mark θ in the corresponding position in triangle GHJ.

b Complete this identity.

$$\frac{AC}{AB} \equiv \frac{DE}{.....} \equiv \frac{.....}{GJ}$$
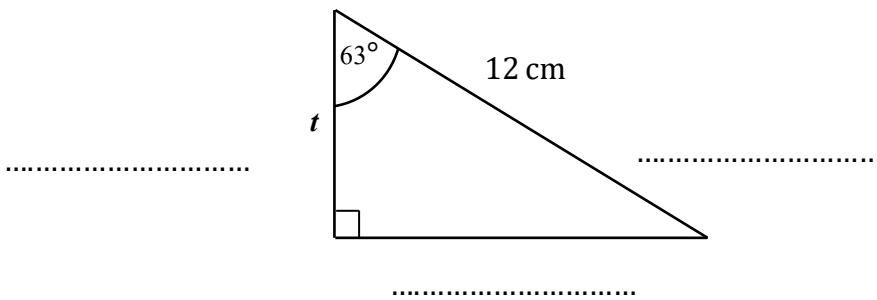
c Is $\dfrac{AC}{AB} \equiv \sin\theta$ or $\cos\theta$ or $\tan\theta$?

....

(4 marks)

2 a Label the sides of the triangle shown with opposite, adjacent and hypotenuse.

b Calculate t correct to 2 decimal places.
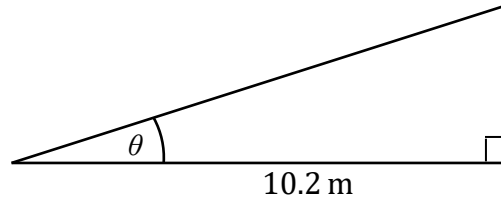
....

(4 marks)

3 The diagram shows the shape of a children's slide.

Calculate the angle of slope, marked θ, given that the base length is 10.2 m and the upright height is 4.5 m.

Round your answer to 3 sf

10.2 m

...............................°

(4 marks)

4 A triangle ABC is right-angled at B. The length of BC is 48 cm and the angle BAC is 34°.
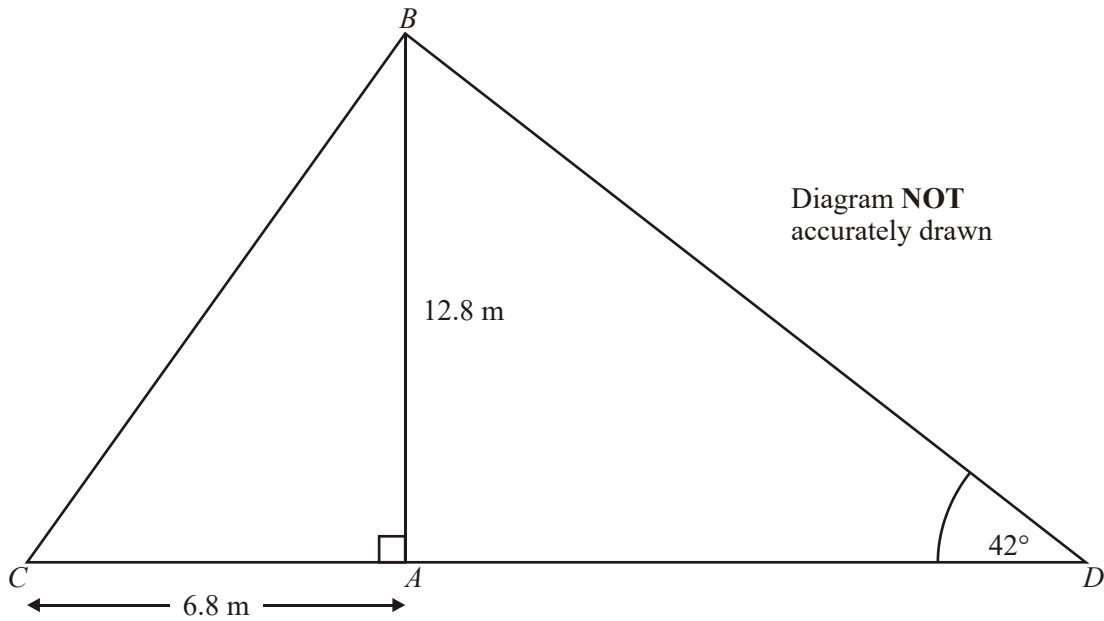
   a Draw a sketch of the triangle ABC with the information marked on your diagram.

   b Calculate the length of AC correct to 3 significant figures.

.... cm

(5 marks)

5 The diagram represents a vertical flagpole, *AB*.
The flagpole is supported by two ropes, *BC* and *BD*, fixed to the horizontal ground at *C* and at *D*.

Diagram **NOT** accurately drawn

AB = 12.8 m.

AC = 6.8 m.

Angle *BDA* = 42 °

(a) Calculate the size of the angle that line *BC* makes with the horizontal.
Give your answer correct to 3 significant figures.

.... °

....

(3)

(b) Calculate the length of the rope *BD*.
Give your answer correct to 3 significant figures.

.... m

(3)

(6 marks)

4

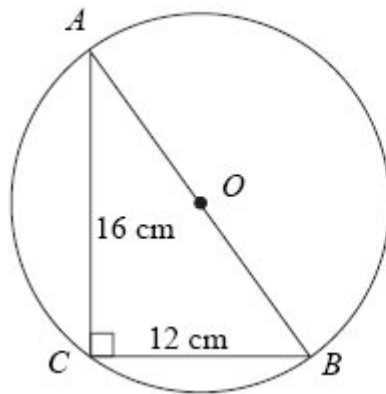**6**

A

16 cm

O

12 cm

C

B

Diagram **NOT**
accurately drawn

The diagram shows triangle *ABC* and a circle, centre *O*.

A, *B* and *C* are points on the circumference of the circle.

Angle *ACB* = 90°.

AC = 16 cm and *BC* = 12 cm.

 Work out the radius OB of the circle.

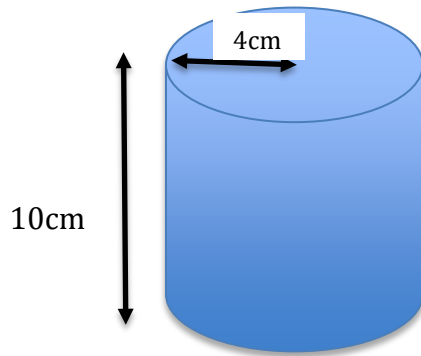………………..cm

(3 marks)

4cm

10cm

Diagram **NOT**
accurately drawn

The diagram shows a cylinder with a height of 10 cm and a radius of 4cm.

The length of a pencil is 13 cm.
The pencil cannot be broken.

a)   Is it possible for the pencil to fit inside the cylinder? Show by calculation
b)   Calculate the angle the base of the cylinder makes with the diagonal

(7 marks)

8 Building regulations state: 'Garden sheds must be no more than 2.5 m high if they are less than 2 m from the boundary fence.'
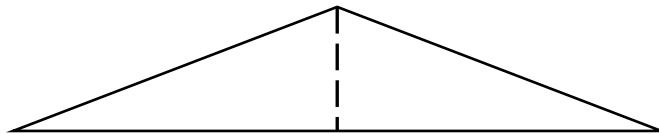
The diagram shows the proposed symmetrical cross-section of a shed that will be built within 2 m of a boundary fence.
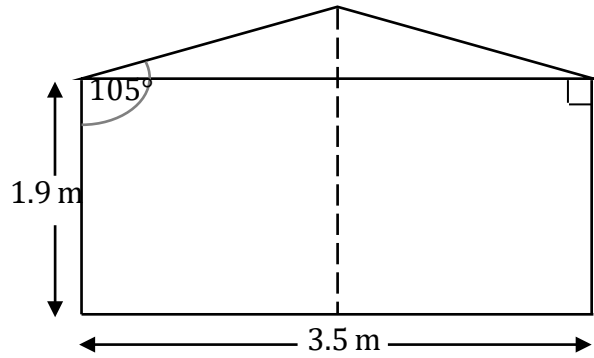
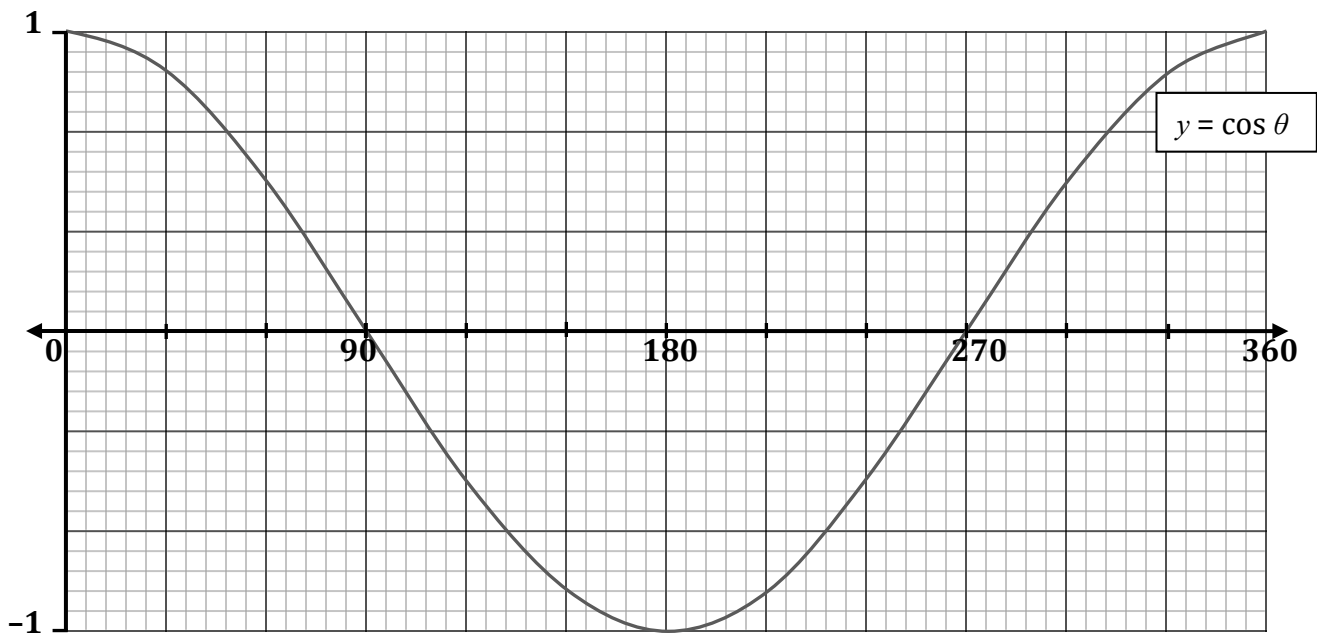Will the shed be too tall to satisfy building regulations?

Use this triangle to help you.
Fill in the information you know.

(7 marks)

9 The graph shows $y = \cos \theta$ for values of θ between 0° and 360°.

a Complete this table of values for $y = \sin \theta$ between 0° and 360°, correct to 2 dp.

x	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°	360°
y			0.87		0.87	0.5		−0.5			−0.87	−0.5	

b Plot and draw this curve, $y = \sin \theta$, on the axes above.

c How many points of intersection between the graphs are there?

....

d For which values of θ between 0° and 360° does $\sin \theta = \cos \theta$?

....

(6 marks)

8

A

9 cm

B

D

35°

3 cm

C
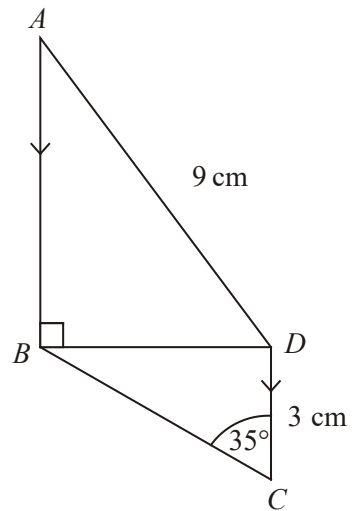
Diagram **NOT**
accurately drawn

AB is parallel to *DC.*

AD = 9 cm, *DC* = 3 cm.

Angle *BCD* = 35°.

Angle *ABD* = 90°.

Calculate the size of angle *BAD.*

....

(4 marks)

TOTAL = 50 MARKS