

# Edexcel GCSE

## Mathematics (Linear) – 1MA0

# 3D PYTHAGORAS

**Materials required for examination**

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.  
Tracing paper may be used.

**Items included with question papers**

Nil

**Instructions**

---

Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number.

Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need.

Calculators may be used.

**Information**

---

The marks for each question are shown in brackets – use this as a guide as to how much time to spend on **each** question.

Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed – you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.

**Advice**

---

Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

1.

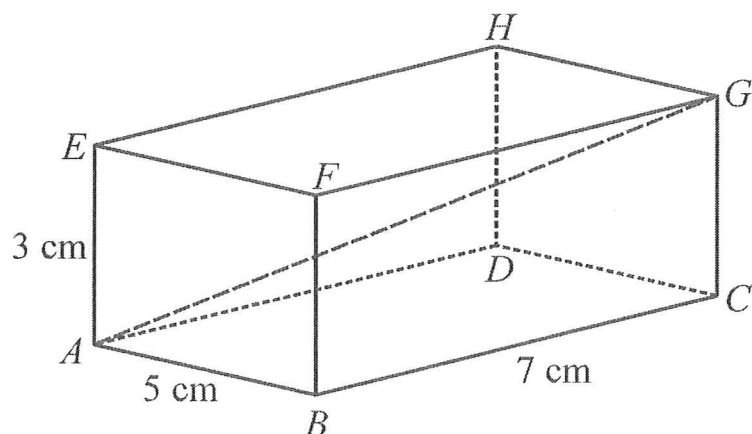


Diagram **NOT**  
accurately drawn

The diagram represents a cuboid  $ABCDEFGH$ .

$$AB = 5 \text{ cm.}$$

$$BC = 7 \text{ cm.}$$

$$AE = 3 \text{ cm.}$$

Calculate the length of  $AG$ .

Give your answer correct to 3 significant figures.

$$\begin{aligned} AG^2 &= 5^2 + 7^2 + 3^2 \\ &= 25 + 49 + 9 \\ &= 83 \end{aligned}$$

$$\begin{aligned} AG &= \sqrt{83} \\ &= 9.110433579 \\ &= 9.11 \text{ (3 sf)} \end{aligned}$$

..... 9.11 ..... cm

(3)

2. A cuboid has length 3 cm, width 4 cm and height 12 cm.

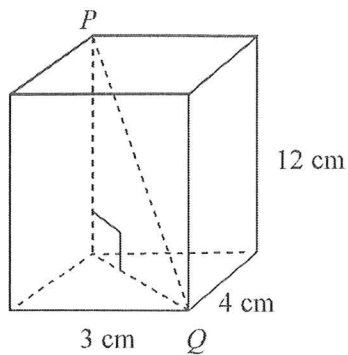


Diagram NOT  
accurately drawn

Work out the length of  $PQ$ .

$$\begin{aligned} PQ^2 &= 3^2 + 4^2 + 12^2 \\ &= 9 + 16 + 144 \\ &= 169 \end{aligned}$$

$$\begin{aligned} PQ &= \sqrt{169} \\ &= 13 \end{aligned}$$

13

..... cm  
(Total 3 marks)

3. The diagram shows a pyramid. The apex of the pyramid is  $V$ .

Each of the sloping edges is of length 6 cm.

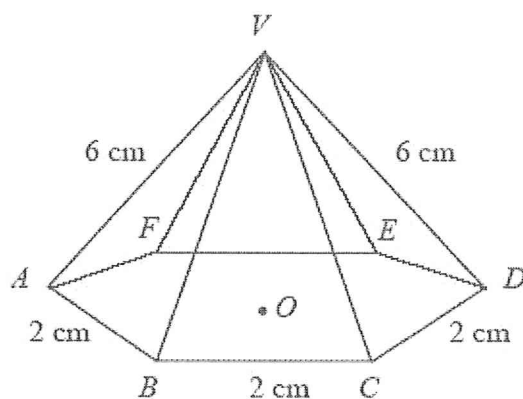


Diagram NOT  
accurately drawn

The base of the pyramid is a regular hexagon with sides of length 2 cm.

$O$  is the centre of the base.

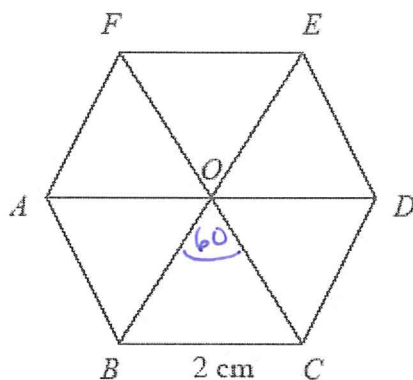
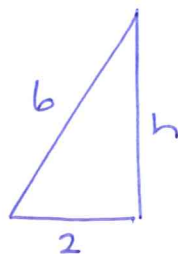


Diagram NOT  
accurately drawn

Triangles are  
equilateral.  
All sides = 2 cm

Calculate the height of  $V$  above the base of the pyramid.

Give your answer correct to 3 significant figures.



$$\begin{aligned} h^2 &= 6^2 - 2^2 \\ &= 36 - 4 \\ &= 32 \end{aligned}$$

$$h = \sqrt{32} = 5.656854 = 5.66 \text{ (3sf)}$$

.....5.66.....cm

(3)