

Name: \_\_\_\_\_

## GCSE (1 – 9)

### 3d Pythagoras and Trigonometry

#### Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

#### Information

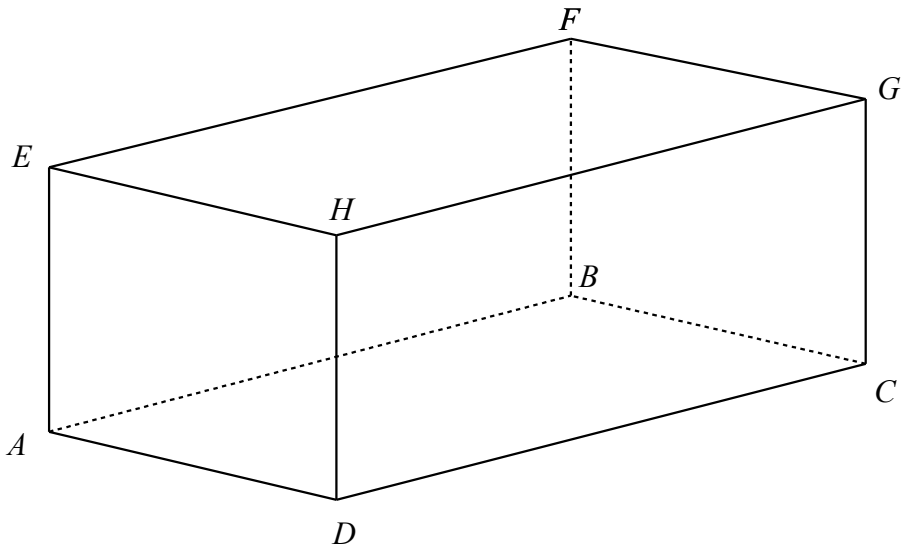
- The marks for each question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*

#### 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 The diagram shows a cuboid  $ABCDEFGH$ .

$AE = 4$  cm  
 $AD = 5$  cm  
 $DC = 8$  cm



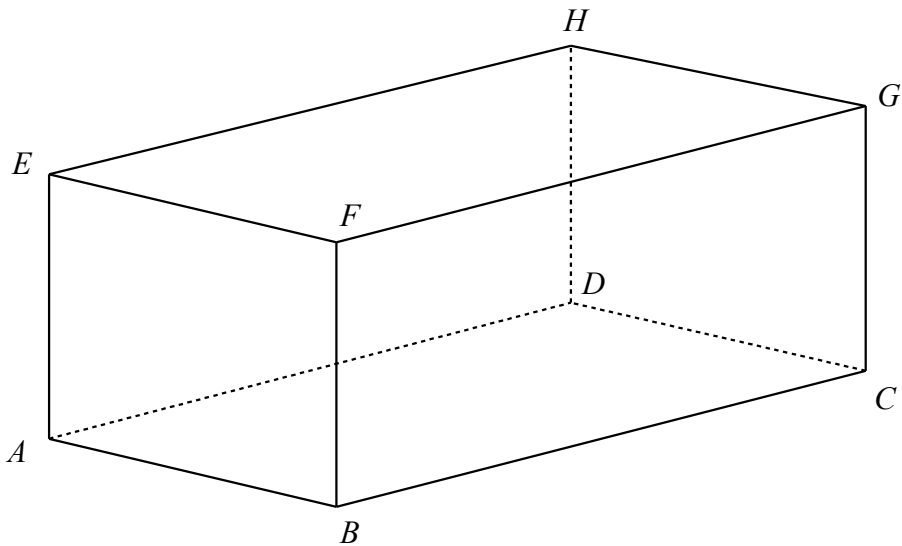
Calculate the length of  $AG$ .  
Give your answer correct to 3 significant figures.

..... cm

**(Total for Question 1 is 3 marks)**

2 The diagram shows a cuboid  $ABCDEFGH$ .

$AB = 5$  cm  
 $AE = 6$  cm  
 $AG = 12$  cm



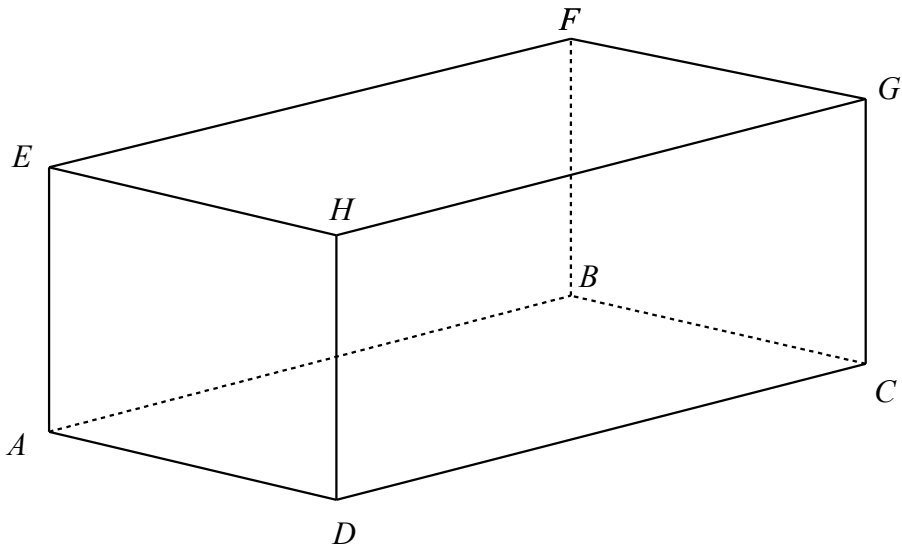
Calculate the length of  $AD$ .  
Give your answer correct to 3 significant figures.

..... cm

**(Total for Question 2 is 4 marks)**

3 The diagram shows a cuboid  $ABCDEFGH$ .

$AE = 4$  cm  
 $AD = 5$  cm  
 $DC = 8$  cm

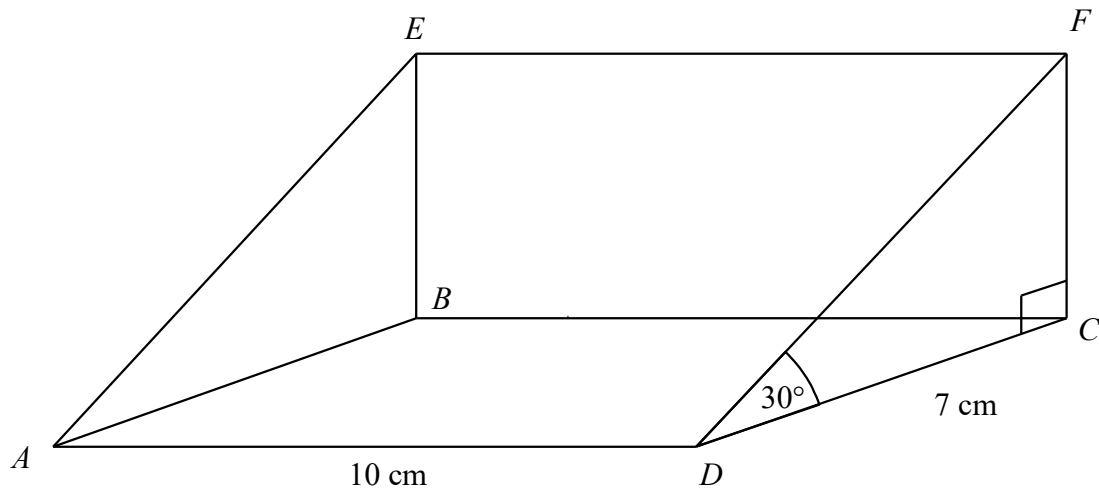


Calculate the size of angle  $ECA$ .  
Give your answer correct to 3 significant figures.

.....  
(Total for Question 3 is 4 marks)

4 The diagram shows a triangular prism.

$CD = 7 \text{ cm}$   
 $AD = 10 \text{ cm}$   
Angle  $ADC = 30^\circ$



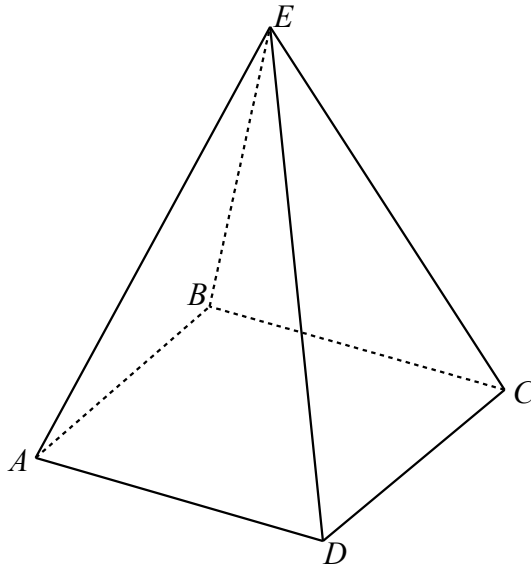
Calculate the size of angle  $AFC$ .  
Give your answer correct to 1 decimal place.

.....  
(Total for Question 4 is 4 marks)

- 5 The diagram shows a pyramid.  
The base of the pyramid  $ABCD$  is a square.

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

The point  $E$  is 10 cm vertically above the base.

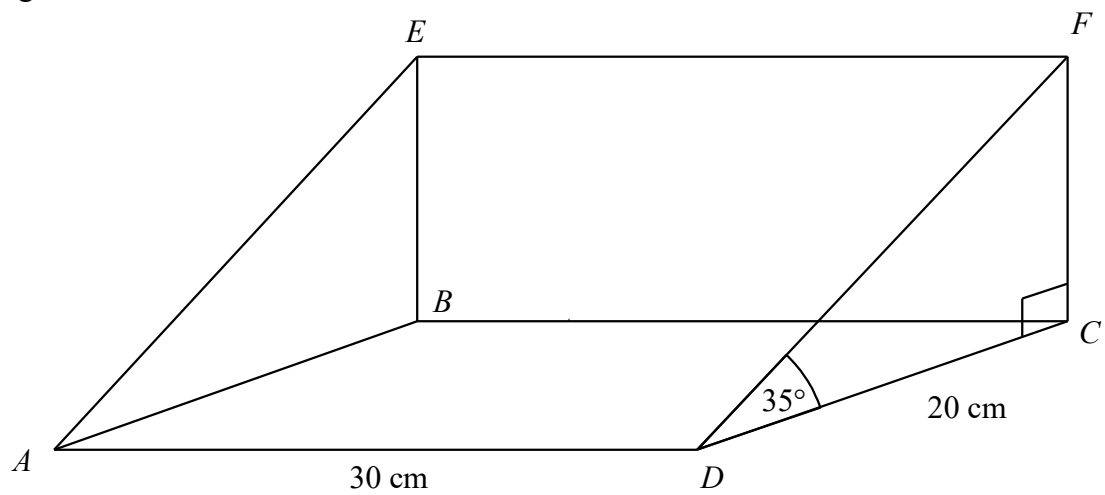


Calculate the size of angle  $EAC$ .

.....  
(Total for Question 5 is 4 marks)

6 The diagram shows a triangular prism.

$CD = 20$  cm  
 $AD = 30$  cm  
Angle  $ADC = 35^\circ$

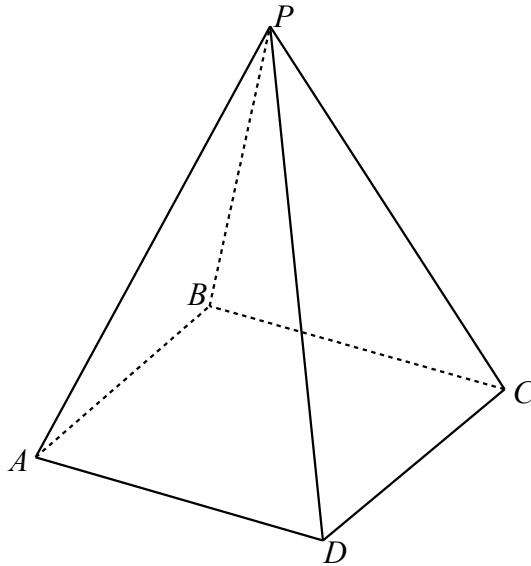


Calculate the size of angle the line  $AF$  makes with the plane  $ABCD$ .  
Give your answer correct to 3 significant figures.

.....  
(Total for Question 6 is 4 marks)

- 7 The diagram shows a pyramid.  
The base of the pyramid  $ABCD$  is a square.

$AB = 15$  cm  
Angle  $PAC = 65^\circ$



Calculate the volume of the pyramid.

..... cm<sup>3</sup>  
**(Total for Question 7 is 5 marks)**