

# Gold Level

## Question Paper 4

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Difficulty Level	Gold
Booklet	Question Paper 4

**Time Allowed:** 57 minutes

**Score:** /47

**Percentage:** /100

**Grade Boundaries:**

9	8	7	6	5	4	3	2	1
>85%	75%	65%	55%	45%	35%	25%	15%	<15%

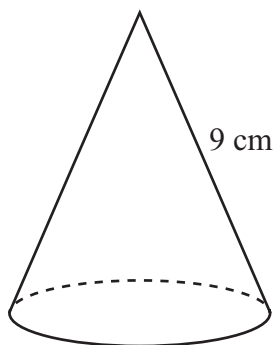


Diagram **NOT** accurately drawn

A solid cone has a slant height of 9 cm.  
The **curved** surface area of the cone is  $100 \text{ cm}^2$ .

Calculate the volume of the cone.  
Give your answer correct to 3 significant figures.

.....  $\text{cm}^3$

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(Total for Question 1 is 5 marks)

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2 (a) Simplify  $(16y^8)^{\frac{3}{4}}$

.....  
(2)

(b) Given that  $2^p \times 8^q = 2^n$

express  $n$  in terms of  $p$  and  $q$ .

$n =$  .....  
(2)

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

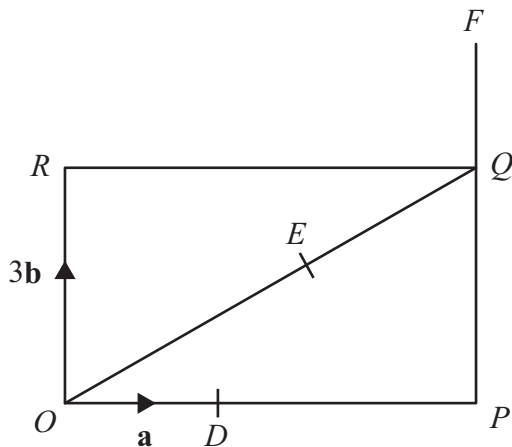


Diagram **NOT** accurately drawn

$OPQR$  is a rectangle.

$D$  is the point on  $OP$  such that  $OD = \frac{1}{3} OP$ .

$E$  is the point on  $OQ$  such that  $OE = \frac{2}{3} OQ$ .

$PQF$  is the straight line such that  $QF = \frac{1}{3} PQ$ .

$$\vec{OD} = \mathbf{a} \quad \vec{OR} = 3\mathbf{b}$$

(a) Find, in terms of  $\mathbf{a}$  and  $\mathbf{b}$ ,

(i)  $\vec{OQ}$

.....

(ii)  $\vec{OE}$

.....

(iii)  $\vec{DE}$

.....

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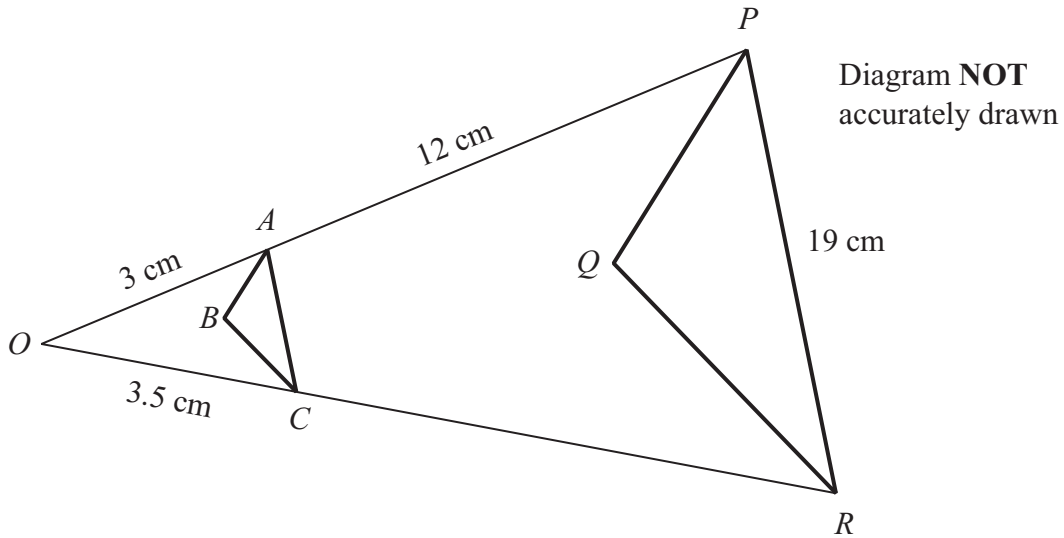
(b) Use a vector method to prove that  $DEF$  is a straight line.

(2)

**(Total for Question 3 is 5 marks)**

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4



Triangle  $PQR$  is an enlargement, centre  $O$ , of triangle  $ABC$ .  
 $OAP$  and  $OCR$  are straight lines.  
 $OA = 3$  cm.  
 $AP = 12$  cm.  
 $OC = 3.5$  cm.  
 $PR = 19$  cm.

(a) Work out the length of  $CR$ .

..... cm  
 (2)

(b) Work out the length of  $AC$ .

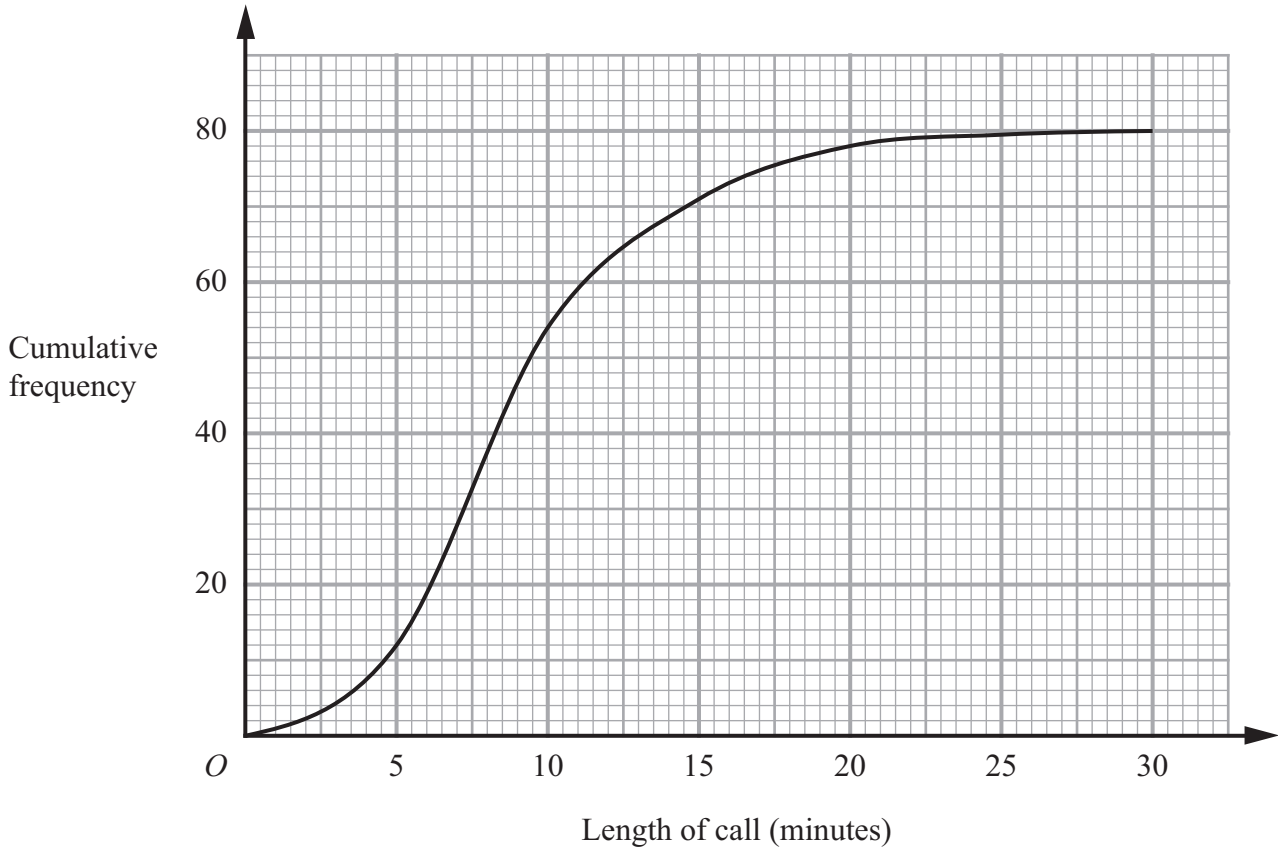
..... cm  
 (3)

The area of triangle  $ABC$  is  $2$  cm<sup>2</sup>

(c) Work out the area of triangle  $PQR$ .

..... cm<sup>2</sup>  
 (2)

5 The cumulative frequency graph gives information about the lengths, in minutes, of 80 telephone calls.



(a) Find an estimate for the number of calls which were longer than 15 minutes.

.....  
(2)

(b) Find an estimate for the interquartile range of the lengths of the 80 calls.

..... minutes  
(2)

(Total for Question 5 is 4 marks)

6

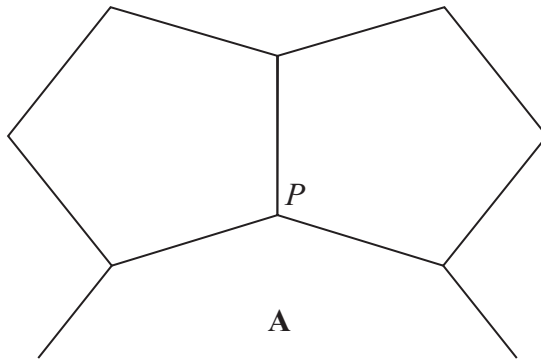


Diagram **NOT**  
accurately drawn

The diagram shows two congruent regular pentagons and part of a regular  $n$ -sided polygon **A**.

Two sides of each of the regular pentagons and two sides of **A** meet at the point  $P$ .

Calculate the value of  $n$ .  
Show your working clearly.

$n = \dots\dots\dots$

(Total for Question 6 is 5 marks)



7

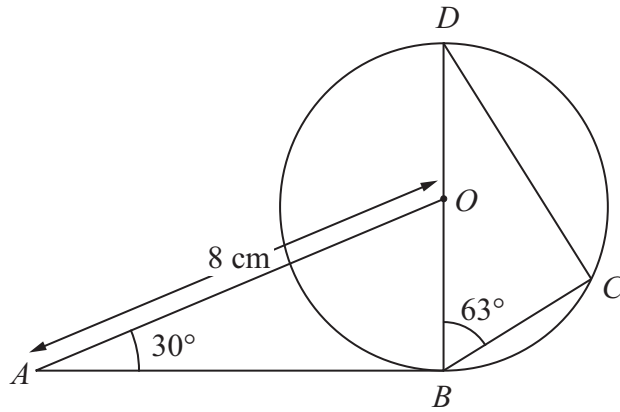


Diagram **NOT** accurately drawn

$B$ ,  $C$  and  $D$  are points on a circle, centre  $O$ .  
 $BOD$  is a diameter of the circle.  
 $AB$  is the tangent to the circle at  $B$ .  
 $AO = 8$  cm.      Angle  $BAO = 30^\circ$       Angle  $CBD = 63^\circ$

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

..... cm

(Total for Question 7 is 4 marks)

- 8 The population of India increased by 20% between 1989 and 1999.  
The population of India increased by a further 17% between 1999 and 2009.

Calculate the percentage by which the population of India increased between 1989 and 2009.

..... %

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**(Total for Question 8 is 3 marks)**

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- 9 (a) Simplify  $(3a^2b)^4$

.....  
(2)

- (b) Simplify  $(9c^8)^{\frac{1}{2}}$

.....  
(2)

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**(Total for Question 9 is 4 marks)**

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10

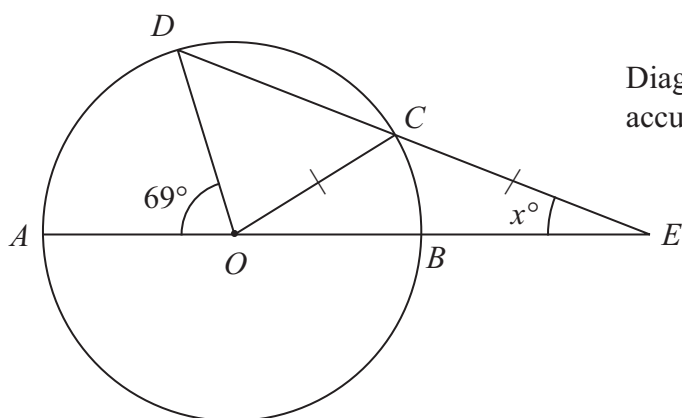


Diagram NOT accurately drawn

$A, B, C$  and  $D$  are points on a circle, centre  $O$ .

$AOBE$  and  $DCE$  are straight lines.

$CO = CE$ .

Angle  $AOD = 69^\circ$

Angle  $CEO = x^\circ$

Calculate the value of  $x$ .

Show your working clearly.

$x = \dots\dots\dots$

(Total for Question 10 is 6 marks)