Gold Level

Question Paper 1

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Difficulty Level	Gold
Booklet	Question Paper 1

Time Allowed: **60 minutes**

Score: **/50**

Percentage: **/100**

Grade Boundaries:

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

1 $y = 1.8$ correct to 1 decimal place.

Calculate the lower bound for the value of $4y + 1$

.....

(Total for Question 1 is 2 marks)

2

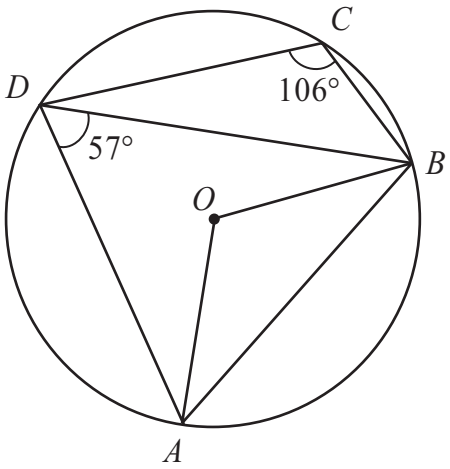


Diagram **NOT** accurately drawn

A, *B*, *C* and *D* are points on a circle, centre *O*.
Angle *ADB* = 57°.
Angle *BCD* = 106°.

(a) (i) Calculate the size of angle *AOB*.

.....°

(ii) Give a reason for your answer.

.....

.....

(2)

(b) Calculate the size of angle *BAD*.

.....°

(1)

(Total for Question 2 is 3 marks)

3 P is directly proportional to the cube of Q.
When $Q = 15$, $P = 1350$

(a) Find a formula for P in terms of Q.

$P =$ .....
(3)

(b) Calculate the value of P when $Q = 20$

$P =$ .....
(1)

(Total for Question 3 is 4 marks)

4 $x = a \times 10^n$ where n is an integer and $\sqrt{10} \leqslant a < 10$

Find, in standard form, an expression for x^2.
Give your expression as simply as possible.

.....

(Total for Question 4 is 3 marks)

5

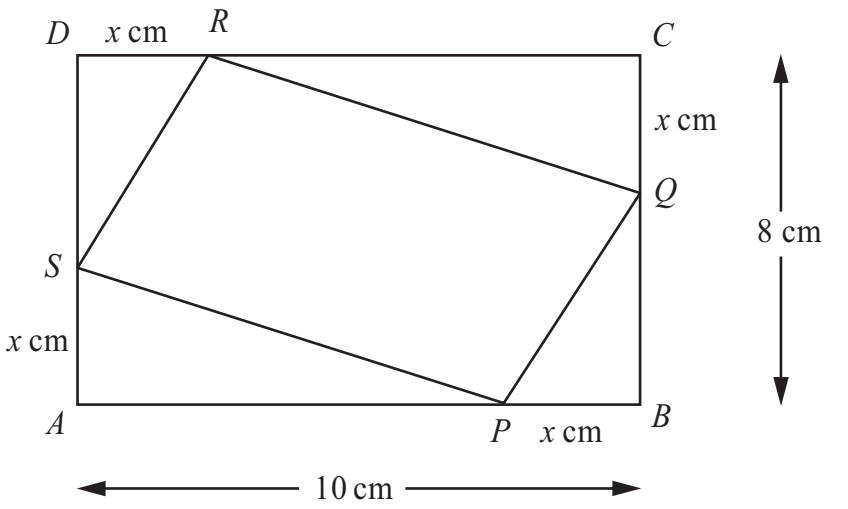


Diagram **NOT** accurately drawn

ABCD is a rectangle.
AB = 10 cm.
BC = 8 cm.
P, *Q*, *R* and *S* are points on the sides of the rectangle.
BP = *CQ* = *DR* = *AS* = *x* cm.

(a) Show that the area, *A* cm^2, of the quadrilateral *PQRS* is given by the formula

$$A = 2x^2 - 18x + 80$$

(b) For $A = 2x^2 - 18x + 80$

(i) find $\frac{dA}{dx}$,

.....

(ii) find the value of x for which A is a minimum.

$x =$ .....

(iii) Explain how you know that A is a minimum for this value of x.

.....

.....

(5)

(Total for Question 5 is 8 marks)

6 Solve the simultaneous equations

$$y = 2x - 3$$

$$x^2 + y^2 = 2$$

.....

(Total for Question 6 is 6 marks)

7

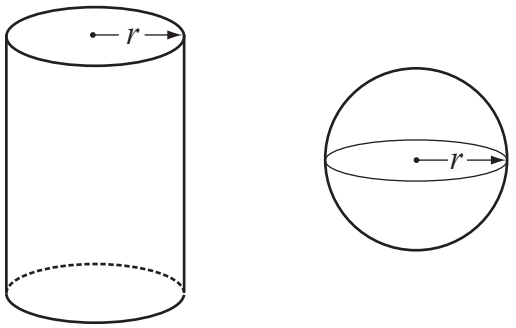


Diagram **NOT** accurately drawn

The diagram shows a solid cylinder and a solid sphere.
The cylinder has radius r.
The sphere has radius r.

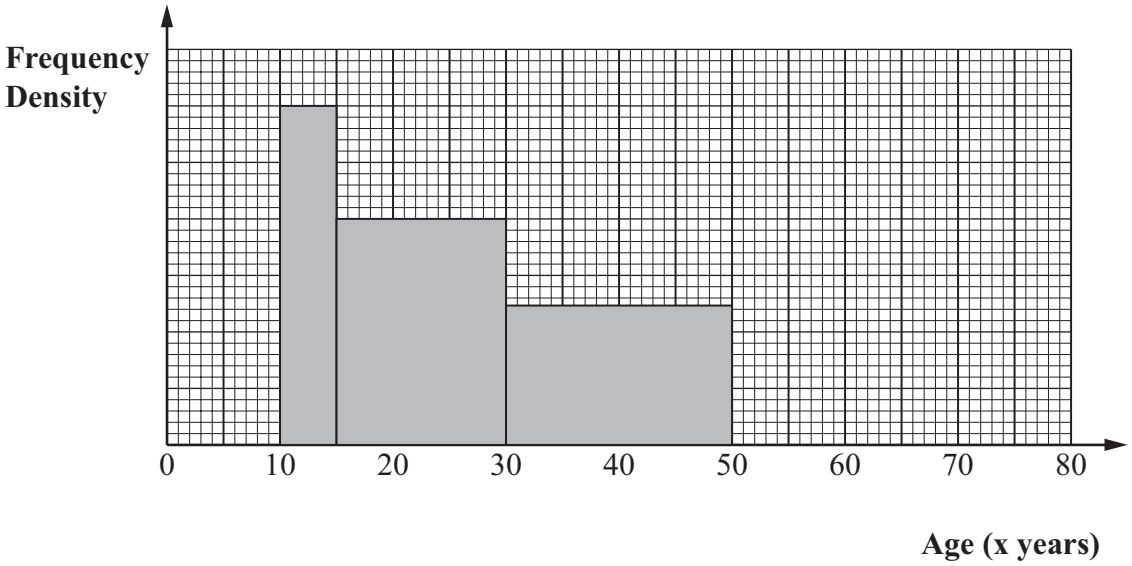
Given that $\dfrac{\textbf{Total surface area of cylinder}}{\text{Surface area of sphere}} = 2$

find the value of $\dfrac{\text{Volume of cylinder}}{\text{Volume of sphere}}$

.....

(Total for Question 7 is 5 marks)

8 The incomplete histogram and table give information about the ages of people living in a village.



Age (x years)	Frequency
$0 \leqslant x < 10$	100
$10 \leqslant x < 15$	60
$15 \leqslant x < 30$	
$30 \leqslant x < 50$	
$50 \leqslant x < 75$	50
$75 \leqslant x < 80$	20

(i) Use the histogram to complete the table.

(ii) Use the table to complete the histogram.

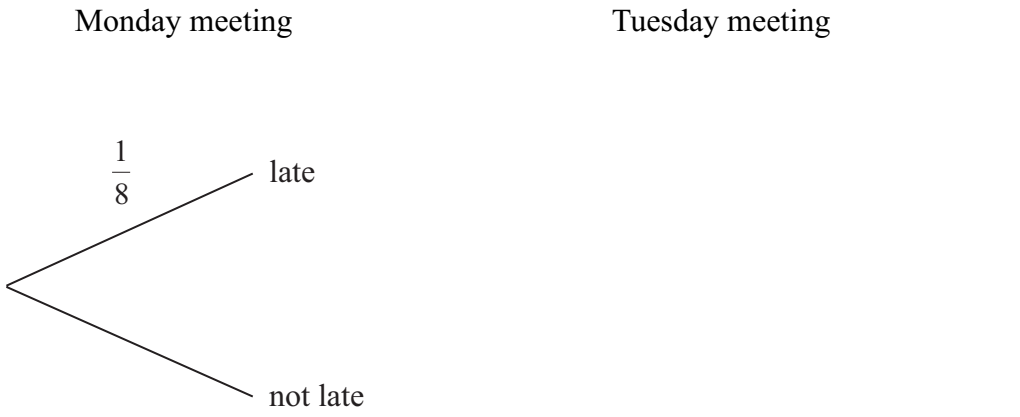
(Total for Question 8 is 4 marks)

9 Alan has to attend a meeting on Monday and on Tuesday.

The probability that he is late for a meeting is $\frac{1}{8}$

(a) Complete the probability tree diagram.

(3)



(b) Calculate the probability that Alan is late for at least one of these meetings.

.....

(3)

(Total for Question 9 is 6 marks)

10 Show that the recurring decimal $0.\dot{3}9\dot{6} = \frac{44}{111}$

(Total for Question 10 is 2 marks)

11 $f(x) = \frac{2}{x}$

$g(x) = \frac{x+1}{x}$

(a) State which value of x cannot be included in the domain of f or g.

.....

(1)

(b) Solve $gf(a) = 3$

$a =$ .....

(3)

(c) Express the inverse function g^{-1} in the form $g^{-1}(x)$

$g^{-1}(x) =$ .....

(3)

(Total for Question 11 is 7 marks)