

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Pearson Edexcel
International
Advanced Level

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--	--

Wednesday 21 October 2020

Morning (Time: 1 hour 30 minutes)

Paper Reference **WMA12/01**

Mathematics

International Advanced Subsidiary/Advanced Level
Pure Mathematics P2

You must have:

Mathematical Formulae and Statistical Tables (Lilac), calculator

Total Marks

Candidates may use any calculator permitted by Pearson regulations. Calculators must not have the facility for symbolic algebra manipulation, differentiation and integration, or have retrievable mathematical formulae stored in them.

Instructions

- Use **black** ink or ball-point pen.
- If pencil is used for diagrams/sketches/graphs it must be dark (HB or B).
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions and ensure that your answers to parts of questions are clearly labelled.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- You should show sufficient working to make your methods clear. Answers without working may not gain full credit.
- Inexact answers should be given to three significant figures unless otherwise stated.

Information

- A booklet 'Mathematical Formulae and Statistical Tables' is provided.
- There are 9 questions in this question paper. The total mark for this paper is 75.
- 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.
- Try to answer every question.
- Check your answers if you have time at the end.
- If you change your mind about an answer, cross it out and put your new answer and any working underneath.

Turn over ►

P62722A

©2020 Pearson Education Ltd.

1/1/1/1/



Pearson



Question 1 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



Question 1 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Leave
blank

Question 1 continued

Lined area for writing the answer to Question 1.

(Total 7 marks)

Q1



$$y = \frac{2^x}{\sqrt{(5x^2 + 3)}}$$

x	-0.25	0	0.25	0.5	0.75
y	0.462		0.653		0.698

$$\int_{-0.25}^{0.75} \frac{2^x}{\sqrt{(5x^2 + 3)}} \, dx$$

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Leave
blank

Question 2 continued

Lined area for writing the answer to Question 2.

(Total 4 marks)

Q2





Question 3 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Question 3 continued

Lined area for writing the answer to Question 3.



DO NOT WRITE IN THIS AREA

Leave
blank

Question 3 continued

Lined area for writing the answer to Question 3.

(Total 10 marks)

Q3



- (3)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Leave
blank

Question 4 continued

Lined area for writing the answer to Question 4 continued.



Question 4 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Leave
blank

Question 4 continued

Lined area for writing the answer to Question 4.

(Total 9 marks)

Q4



- (e) State, with a reason, which of the solutions to the equation in part (c) is **not** a sensible value for n . (1)

Question 5 continued

Lined area for writing the answer to Question 5.

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Leave
blank

Question 5 continued

Lined area for writing the answer to Question 5.

(Total 11 marks)

Q5



6.

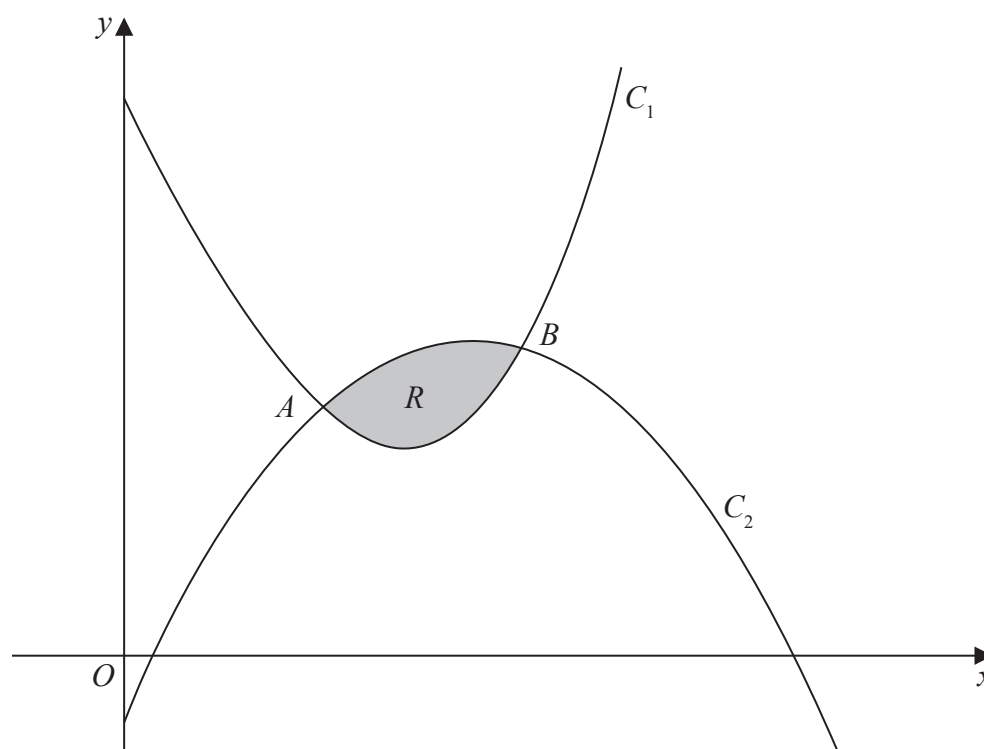


Figure 1

Figure 1 shows a sketch of part of the curves C_1 and C_2 with equations

$$\begin{aligned} C_1 : y &= x^3 - 6x + 9 & x &\geq 0 \\ C_2 : y &= -2x^2 + 7x - 1 & x &\geq 0 \end{aligned}$$

The curves C_1 and C_2 intersect at the points A and B as shown in Figure 1.

The point A has coordinates $(1, 4)$.

Using algebra and showing all steps of your working,

- (a) find the coordinates of the point B . (4)

The finite region R , shown shaded in Figure 1, is bounded by C_1 and C_2

- (b) Use algebraic integration to find the exact area of R . (5)



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Leave
blank

Question 6 continued

Lined area for writing the answer to Question 6.



Question 6 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Leave
blank

Question 6 continued

Lined area for writing the answer to Question 6.

(Total 9 marks)

Q6

Box for marking the question.



DO NOT WRITE IN THIS AREA

Leave
blank

Question 7 continued

Lined area for writing the answer to Question 7.

(Total 7 marks)

Q7



8. A geometric series has first term a and common ratio r .

(a) Prove that the sum of the first n terms of this series is given by

$$S_n = \frac{a(1 - r^n)}{1 - r} \quad (3)$$

The second term of a geometric series is -320 and the fifth term is $\frac{512}{25}$

(b) Find the value of the common ratio. (2)

(c) Hence find the sum of the first 13 terms of the series, giving your answer to 2 decimal places. (3)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



Question 8 continued

Lined area for writing the answer to Question 8 continued.

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Question 8 continued

Lined area for writing the answer to Question 8.



DO NOT WRITE IN THIS AREA

Leave
blank

Question 8 continued

Lined area for writing the answer to Question 8.

(Total 8 marks)

Q8



Question 9 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



Leave
blank

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Question 9 continued

Lined area for writing the answer to Question 9.

Q9

(Total 10 marks)

END

TOTAL FOR PAPER IS 75 MARKS

