

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Candidate Number

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Pearson Edexcel International Advanced Level

Tuesday 4 June 2024

Morning (Time: 1 hour 30 minutes)

Paper
reference

WFM02/01

Mathematics

**International Advanced Subsidiary/ Advanced Level
Further Pure Mathematics F2**

You must have:

Mathematical Formulae and Statistics Tables (Yellow), 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 10 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 ►

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5.

In this question you must show all stages of your working.

Solutions relying entirely on calculator technology are not acceptable.

Use algebra to determine the values of x for which

$$\frac{x+1}{(x-3)(x+2)} \leq 1 - \frac{2}{x-3}$$

(6)

DO NOT WRITE IN THIS AREA

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10.

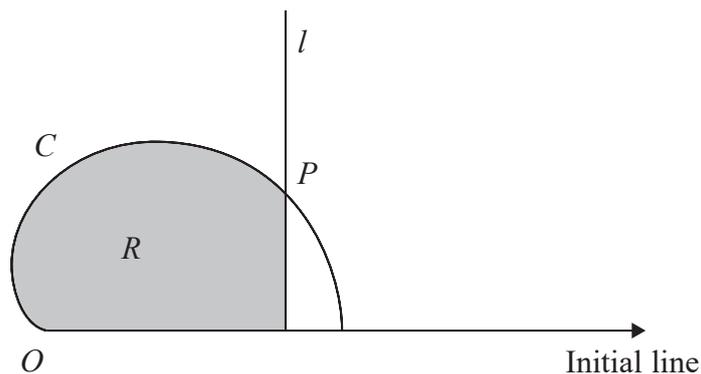


Figure 1

Figure 1 shows a sketch of the curve C with polar equation

$$r = 1 + \cos \theta \quad 0 \leq \theta \leq \pi$$

and the line l with polar equation

$$r = k \sec \theta \quad 0 \leq \theta < \frac{\pi}{2}$$

where k is a positive constant.

Given that

- C and l intersect at the point P
- $OP = 1 + \frac{\sqrt{3}}{2}$

(a) determine the exact value of k .

(2)

The finite region R , shown shaded in Figure 1, is bounded by C , the initial line and l .

(b) Use algebraic integration to show that the area of R is

$$p\pi + q\sqrt{3} + r$$

where p , q and r are simplified rational numbers to be determined.

(7)



