

Write your name here

Surname	Other names
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**Pearson Edexcel
International GCSE**

Centre Number

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Candidate Number

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Further Pure Mathematics

Paper 1

Tuesday 13 June 2017 – Morning
Time: 2 hours

Paper Reference
4PM0/01

Calculators may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Without sufficient working, correct answers may be awarded no marks.
- Answer the questions in the spaces provided
– *there may be more space than you need.*

Information

- The total mark for this paper is 100.
- 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.
- Check your answers if you have time at the end.

Turn over ►

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Answer all TEN questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Find the exact solution of the equation

$$\frac{16}{e^x} - e^x = 6$$

(5)

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Question 1 continued

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(Total for Question 1 is 5 marks)



- 2 Sand is poured onto horizontal ground at a rate of $50 \text{ cm}^3/\text{s}$. The sand forms a right circular cone with its base on the ground. The volume of the cone increases in such a way that the radius of the base is always three times the height of the cone. Find the rate of change, in cm/s to 3 significant figures, of the radius of the cone when the radius is 10 cm .

(5)

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5 In triangle ABC , $AB = 10$ cm, $BC = 7$ cm and angle $BAC = 40^\circ$

(a) Find, in degrees to the nearest 0.1° , the two possible sizes of angle ACB . (4)

(b) Find, in cm to 3 significant figures, the difference between the two possible lengths of AC . (4)

Area with horizontal dotted lines for writing answers.



8 The points A and B have coordinates $(1, 7)$ and $(13, 1)$ respectively.

(a) Find the exact length of AB . (2)

The point C divides AB in the ratio $1:2$

(b) Find the coordinates of C . (2)

The line l passes through C and is perpendicular to AB .

(c) Find an equation of l , giving your answer in the form $y = ax + b$ where a and b are integers. (4)

The point D with coordinates $(9, d)$ lies on l .

(d) Find the value of d . (1)

The point E is the midpoint of CD .

(e) Find the exact value of the area of the quadrilateral $ADBE$. (5)

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