1.6 Pure: Exponentials and Logarithms: 10-minute Pack

EDEXCEL 9MA0 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Solve $3^x = 81$.

(Total for Question 1 is 1 mark)

2 Write down the value of $\ln(e^5)$.

(Total for Question 2 is 1 mark)

3 This question tests index and logarithm notation. Do not use a calculator.

(a) Write $\log_5(125) = 3$ in index form. **(1)**

(b) Simplify $\log_3(45) - \log_3(5)$, giving your answer as an integer. **(2)**

(c) Solve $4^x = 64$, showing your method clearly. **(2)**

(d) Express $2\log_a(3) + \log_a(5)$ as a single logarithm. **(2)**

(Total for Question 3 is 7 marks)

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Question 1

4 cao **B1**

Answer: x = 4

Question 2

5 cao **B1**

Answer: 5

Question 3

(a) $5^3 = 125$ stated correctly **B1**

(a) Answer: $5^3 = 125$

(b) combines using $\log_3(45) - \log_3(5) = \log_3(45/5) = \log_3(9)$ **M1**

(b) 2 cao **A1**

(b) Answer: 2

(c) writes 64 as 4^3 (or takes logs of both sides) **M1**

(c) x = 3 cao **A1**

(c) Answer: x = 3

(d) rewrites $2\log_a(3)$ as $\log_a(9)$ **M1**

(d) $\log_a(45)$ oe cao **A1**

(d) Answer: $\log_a(45)$

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