1.8 Pure: Integration: 10-minute Pack

EDEXCEL 9MA0 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 This question tests integration of e^{kx} and $1/x$, and finding a particular solution using a given point.

(a) Find integral of $(e^{2x} + 3/x)\,dx$, for $x > 0$. **(2)**

(b) A curve C has $dy/dx = 6x^2 - e^{-x}$, and C passes through the point (0, 5). Find y in terms of x. **(4)**

(c) Hence find the gradient of C at the point where $x = 0$. **(2)**

(Total for Question 1 is 8 marks)

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Mark scheme · 1.8 Pure: Integration: 10-minute Pack

Question 1

(a) $(1/2)e^{2x}$ term correct	**M1**
(a) 3 ln x + c, all correct oe	**A1**
(a) Answer: $(1/2)e^{2x}$ + 3 ln x + c	
(b) integrate $6x^2$ to $2x^3$	**M1**
(b) integrate $-e^{-x}$ to e^{-x}, sign correct	**M1**
(b) substitute x = 0, y = 5 to find the constant	**M1**
(b) $y = 2x^3 + e^{-x} + 4$, cao	**A1**
(b) Answer: $y = 2x^3 + e^{-x} + 4$	
(c) substitute x = 0 into $6x^2 - e^{-x}$	**M1**
(c) -1, cao	**A1**
(c) Answer: -1	

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