Logs: Laws & solving equations Difficulty : Easy

Question Paper 3

Level	AS & A Level
Subject	Maths - Pure
Exam Board	Edexcel
Topic	Exponentials and Logarithms
Sub-Topic	Logs: Laws & solving equations
Difficulty	Easy
Booklet	Question Paper 3

Time allowed: **40 minutes**

Score: **/33**

Percentage: **/100**

Grade Boundaries:

A*	A	B	C	D	E	U
>76%	61%	52%	42%	33%	23%	<23%

Find the exact solutions, in their simplest form, to the equations

(a) $e^{3x-9} = 8$ **(3)**

(b) $\ln(2y + 5) = 2 + \ln(4 - y)$ **(4)**

(Total 7 marks)

Question 2

Find any real values of x such that $2\log_4(2 - x) - \log_4(x + 5) = 1$. **(6)**

(Total 6 marks)

Question 3

(i) Solve

$$5^{y} = 8$$

giving your answer to 3 significant figures.

(2)

(ii) Use algebra to find the values of x for which

$$\log_2(x + 15) - 4 = \frac{1}{2}\log_2 x$$

(6)

(Total 8 marks)

Solve

$$2 \log_3 x - \log_3 (x - 2) = 2, \qquad x > 2. \tag{6}$$

(Total 6 marks)

Question 5

Find the exact solutions of

(i) $e^{2x + 3} = 6,$ **(3)**

(ii) $\ln (3x + 2) = 4.$ **(3)**

(Total 6 marks)