

Topic: Logarithms**Day 3 Question 1**

(i) Given that

$$\log_3(3b + 1) - \log_3(a - 2) = -1, \quad a > 2,$$

express b in terms of a .

(3)

(ii) Solve the equation

$$2^{2x+5} - 7(2^x) = 0,$$

giving your answer to 2 decimal places.

(Solutions based entirely on graphical or numerical methods are not acceptable.)

(4)

(Total 7 marks)

Day 3 Questions 2

(i) Find the value of y for which

$$1.01^{y-1} = 500$$

Give your answer to 2 decimal places.

(2)

(ii) Given that

$$2\log_4(3x + 5) = \log_4(3x + 8) + 1, \quad x > -\frac{5}{3}$$

(a) show that

$$9x^2 + 18x - 7 = 0$$

(4)

(b) Hence solve the equation

$$2\log_4(3x + 5) = \log_4(3x + 8) + 1, \quad x > -\frac{5}{3}$$

(2)
