4. The binomial expansion, in ascending powers of x, of

$$(3 + px)^5$$

where p is a constant, can be written in the form

$$A + Bx + Cx^2 + Dx^3 \ldots$$

where A, B, C and D are constants.

(a) Find the value of A

(1)

Given that

- $B = 18D$
- $p < 0$

(b) find

(i) the value of p

(ii) the value of C

(6)

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Question 4 continued

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Question 4 continued

(Total for Question 4 is 7 marks)

5. Use the laws of logarithms to solve

$$\log_2(16x) + \log_2(x + 1) = 3 + \log_2(x + 6)$$

(5)

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