1: (a) Use the definition of $\cosh x$ in terms of exponentials to show that

$$2\cosh 5x \cosh x \equiv \cosh 6x + \cosh 4x$$

(2)

(b) Hence determine the exact values of x for which

$$\cosh 6x + \cosh 4x = 8\cosh x$$

giving your answers in terms of natural logarithms in simplest form.

(4)

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Question 1 continued

(Total for Question 1 is 6 marks)