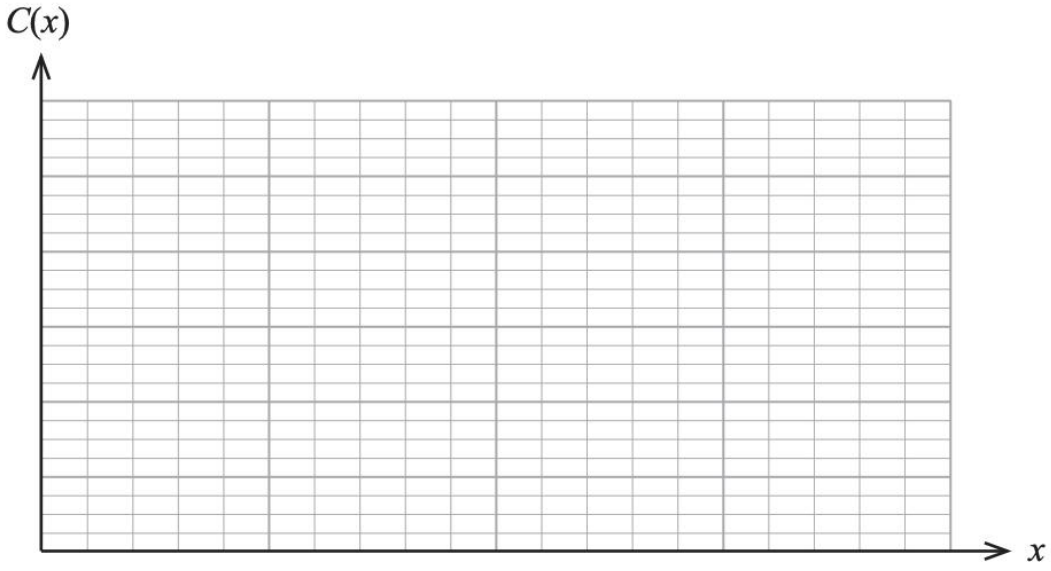
Question 13 **(7 marks)**

A company manufactures small machine components. They can manufacture up to 200 of a particular component in one day. The total cost, in hundreds of dollars, incurred in manufacturing the components is given by: $C(x) = \dfrac{x \ln(2x+1)}{3} - 2x + 120$, where x is the number of components that will be produced on that day.

(a) Determine the total cost of manufacturing 20 components in one day. (1 mark)

(b) On the axes below, sketch the graph of $C(x)$. (3 marks)



(c) With reference to your graph in part (b), explain how many components the company should manufacture per day if the total cost is to be as low as possible. (3 marks)