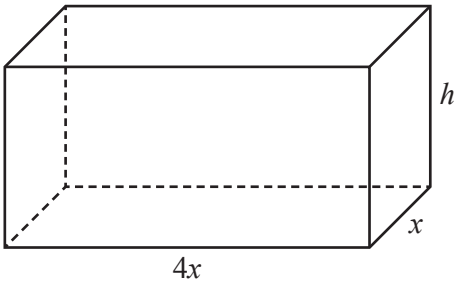
12 **(a)** Find the x-coordinates of the stationary points of the curve $y = e^{3x}(2x+3)^6$. [6]

(b) A curve has equation $y = f(x)$ and has exactly two stationary points. Given that $f''(x) = 4x - 7$, $f'(0.5) = 0$ and $f'(3) = 0$, use the second derivative test to determine the nature of each of the stationary points of this curve. [2]

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(c) In this question all lengths are in centimetres.



The diagram shows a solid cuboid with height h and a rectangular base measuring $4x$ by x. The volume of the cuboid is $40\,\text{cm}^3$. Given that x and h can vary and that the surface area of the cuboid has a minimum value, find this value. [5]

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