11 The equation of a curve is $y = x\sqrt{16-x^2}$ for $0 \leqslant x \leqslant 4$.

(a) Find the exact coordinates of the stationary point of the curve. [6]

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(b) Find $\frac{\mathrm{d}}{\mathrm{d}x}\left(16-x^2\right)^{\frac{3}{2}}$ and hence evaluate the area enclosed by the curve $y = x\sqrt{16-x^2}$ and the lines $y = 0$, $x = 1$ and $x = 3$. [5]

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[Turn over