**9** The curve $C$, with equation $y = \mathrm{f}(x)$, passes through the point with coordinates $(0, 4)$.

Given that $\mathrm{f}'(x) = x^3 - 3x^2 - x + 3$

(a) find $\mathrm{f}(x)$.

**(3)**

(b) Show that $C$ has a minimum point at $x = -1$ and a minimum point at $x = 3$

**(6)**

(c) (i) Find the coordinates of the maximum point on $C$.

(ii) Show that the point found in (i) is a maximum point.

**(3)**

(d) State the ranges of values of $x$ for which $\mathrm{f}'(x) > 0$

**(2)**

**Question 9 continued**

**Question 9 continued**

**Question 9 continued**

**(Total for Question 9 is 14 marks)**