9 The curve C, with equation $y = f(x)$, passes through the point with coordinates $\left(-2, -\frac{28}{3}\right)$

Given that $f'(x) = x^3 - x^2 - 4x + 4$

(a) show that C passes through the origin.

(4)

(b) (i) Show that C has a minimum point at $x = 2$ and a maximum point at $x = 1$

(ii) Find the exact value of the y coordinate at each of these points.

(7)

The curve has another turning point at A.

(c) (i) Find the coordinates of A.

(ii) Determine the nature of this turning point.

(3)

Question 9 continued

Question 9 continued

Question 9 continued

(Total for Question 9 is 14 marks)