

- 7 The point with coordinates $(4, -104)$ lies on the curve C with equation $y = f(x)$

Given that $f'(x) = 4x^3 - 12x^2 - 19x + 12$

- (a) (i) show that C passes through the origin,

(4)

- (ii) show that C has a maximum at the point on the curve where $x = 0.5$

(3)

The curve C has another turning point at A and another turning point at B .

Given that the x coordinate of A is negative,

- (b) (i) find the coordinates of A and the coordinates of B ,

(5)

- (ii) determine the nature of these turning points.

(3)

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