8 The curves $y = x^2 + x - 1$ and $2y = x^2 + 6x - 2$ intersect at the points A and B.

(a) Show that the mid-point of the line AB is (2, 9). [5]

The line l is the perpendicular bisector of AB.

(b) Show that the point C (12, 7) lies on the line l. [3]

(c) The point D also lies on l, such that the distance of D from AB is two times the distance of C from AB. Find the coordinates of the two possible positions of D. [4]