7 **(a)** The line $y = 3x - 2$ intersects the curve $2x^2 - xy + y^2 = 2$ at the points A and B. The point C with coordinates $\left(k, \frac{7}{8}\right)$ lies on the perpendicular bisector of the line AB. Find the exact value of k.

[9]

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(b) The point D lies on the perpendicular bisector of AB such that D is a reflection of C in the line AB. Find the coordinates of D. [2]

8 A curve has equation $y = \dfrac{(3x^2-5)^{\frac{1}{3}}}{x+4}$.

(a) Show that $\dfrac{\mathrm{d}y}{\mathrm{d}x}$ can be written in the form $\dfrac{Ax^2+Bx+C}{(3x^2-5)^{\frac{2}{3}}(x+4)^2}$, where A, B and C are integers. [5]

(b) Hence find the x-coordinates of the stationary points on the curve. Give your answers in their simplest exact form. [3]

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