4 The straight line $y = 3x - 11$ and the curve $xy = 4 - 3x - 2x^2$ intersect at the points A and B. The point C, with coordinates $(a, -8)$ where a is a constant, lies on the perpendicular bisector of the line AB. Find the value of a. [8]

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5 **(a)** Find the first three terms in the expansion of $\left(x^2 - \frac{4}{x^2}\right)^{10}$ in descending powers of x. Give each term in its simplest form. [3]

(b) Hence find the coefficient of x^{16} in the expansion of $\left(x^2 - \frac{4}{x^2}\right)^{10}\left(x^2 + \frac{2}{x^2}\right)^2$. [3]