2 Find the set of values of k for which the line $y = kx - 3$ meets the curve $y = x^2 + 2x$ at two distinct points.
Give your answer in simplest surd form. [6]

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3 **(a)** Solve the equation $\log_2 x - 4 = 5\log_x 2$. [5]

(b) Solve the equation $e^{x^2-3} = 25e^{7-x^2}$. [4]