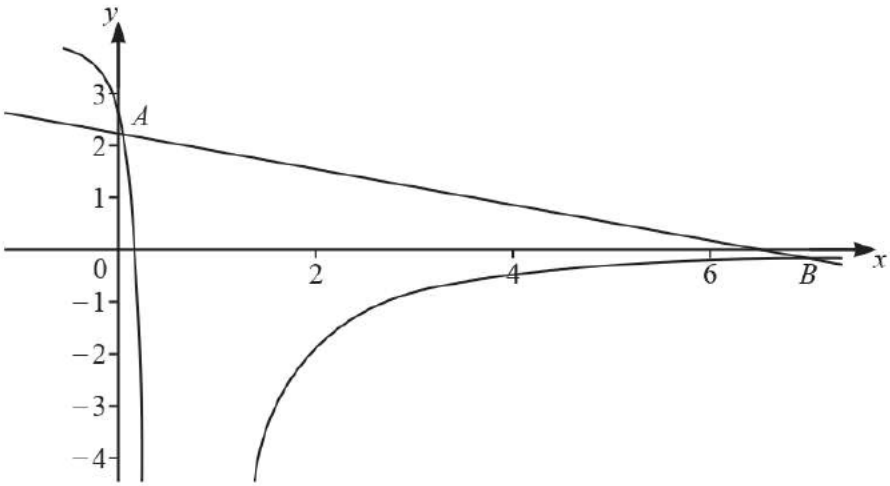
6 **(a)** Express $\dfrac{5-35x}{(2+x)(1-2x)^2}$ in partial fractions. **[4]**

(b) Hence expand $\dfrac{5-35x}{(2+x)(1-2x)^2}$ in ascending powers of x, up to and including the term in x. **[4]**



(c) The diagram shows the line with equation $y = \dfrac{11}{5} - \dfrac{1}{3}x$ and part of the curve with equation $y = \dfrac{5-35x}{(2+x)(1-2x)^2}$.

The line and curve intersect at points A and B.

Use your answer to part **(b)** to find an approximation for the value of the x-coordinate of A. Give your answer to **3** decimal places. **[2]**

A student says that to find an approximation for the value of the x-coordinate of B more terms in the expansion of $\dfrac{5-35x}{(2+x)(1-2x)^2}$ would need to be considered.

(d) Explain why the student's method for finding an approximation for the value of the x-coordinate of B is **not** valid. **[1]**