4 **In this question you must show detailed reasoning.**

A curve has equation $y = x - 5 + \dfrac{1}{x-2}$. The curve is shown in Fig. 4.
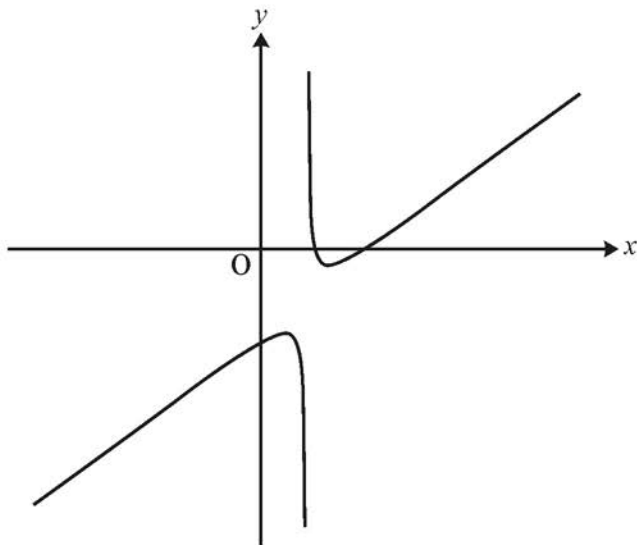

Fig. 4

(i) Determine the coordinates of the stationary points on the curve. [5]

(ii) Determine the nature of each stationary point. [3]

(iii) Write down the equation of the vertical asymptote. [1]

(iv) Deduce the set of values of x for which the curve is concave upwards. [1]