

STEP III, 2004, Q2

2 The equation of a curve is $y = f(x)$ where

$$f(x) = x - 4 - \frac{16(2x + 1)^2}{x^2(x - 4)}.$$

- (i) Write down the equations of the vertical and oblique asymptotes to the curve and show that the oblique asymptote is a tangent to the curve.
- (ii) Show that the equation $f(x) = 0$ has a double root.
- (iii) Sketch the curve.



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