

STEP III, 2003 Q8

- 8 (i) Show that the gradient at a point (x, y) on the curve

$$(y + 2x)^3 (y - 4x) = c,$$

where c is a constant, is given by

$$\frac{dy}{dx} = \frac{16x - y}{2y - 5x}.$$

- (ii) By considering the derivative with respect to x of $(y + ax)^n (y + bx)$, or otherwise, find the general solution of the differential equation

$$\frac{dy}{dx} = \frac{10x - 4y}{3x - y}.$$



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