7 A curve has equation $y = \dfrac{(2x+1)^{\frac{3}{2}}}{x+5}$ for $x \geqslant 0$.

(a) Show that $\dfrac{\mathrm{d}y}{\mathrm{d}x} = \dfrac{(2x+1)^{\frac{1}{2}}}{(x+5)^2}(Ax+B)$, where A and B are integers to be found. [4]

(b) Show that there are no stationary points on this curve. [1]

(c) Find the approximate change in y when x increases from 1 to $1 + p$, where p is small. [2]

(d) Given that when $x = 1$ the rate of change in x is 2.5 units per second, find the corresponding rate of change in y. [2]