5 When e^{2y} is plotted against x^3, a straight line graph that passes through the points (2, 5) and (6.4, 7.2) is obtained.

(a) Find y in terms of x. [4]

(b) Find the values of x for which y exists. [2]

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6 It is given that $y = \dfrac{\ln\left(2x^2+1\right)}{x+2}$, $x \neq -2$.

(a) Find $\dfrac{\mathrm{d}y}{\mathrm{d}x}$. [3]

(b) Given that x increases from 1 to $1+h$, where h is small, find the approximate corresponding change in y. [2]

(c) When $x = 1$, the rate of change in y is 3 units per second. Find the corresponding rate of change in x. [2]

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