6 The parametric equations of a curve are

$$x = \frac{2t+1}{3t+4}, \qquad y = 2\ln(3t+4),$$

where $t > -\frac{4}{3}$.

(a) Show that $\frac{dy}{dx}$ can be expressed in the form $c(3t+4)$ and state the value of the constant c. [5]

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(b) It is given that the gradient of the curve at the point $(a, \ln 100)$ is m.

Find the values of a and m. [4]

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(c) State whether the curve represents a decreasing function or an increasing function or neither. Give a reason for your answer. [1]

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