1. June/2023/Paper_9709/31/No.3

The equation of a curve is $x^2y - ay^2 = 4a^3$, where a is a non-zero constant.

(a) Show that $\dfrac{dy}{dx} = \dfrac{2xy}{2ay - x^2}$. [4]

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(b) Hence find the coordinates of the points where the tangent to the curve is parallel to the y-axis. [4]

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2. June/2023/Paper_9709/33/No.10

Let $f(x) = \dfrac{21 - 8x - 2x^2}{(1 + 2x)(3 - x)^2}$.

(a) Express $f(x)$ in partial fractions. [5]

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(b) Hence obtain the expansion of $f(x)$ in ascending powers of x, up to and including the term in x^2. [5]

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