## <u>Differential equations – 2023 March Cambridge AS & A Level Mathematics</u>

## 1. March/2023/Paper\_9709/32/No.9

The variables x and y satisfy the differential equation

$$\frac{\mathrm{d}y}{\mathrm{d}x} = \mathrm{e}^{3y} \sin^2 2x.$$

It is given that y = 0 when x = 0.

Solve the differential equation and find the value of y when  $x = \frac{1}{2}$ .

[7]

