7 **(a)** Write down an expression for the gradient of the curve $y = e^{kx}$. [1]

(b) The line L is a tangent to the curve $y = e^{\frac{1}{2}x}$ at the point where $x = 2$.

Show that L passes through the point $(0, 0)$. [4]

(c) Find the coordinates of the point of intersection of the curves $y = 3e^{x}$ and $y = 1 - 2e^{\frac{1}{2}x}$. [6]

Instructions to invigilators:

Before the start of the exam, please read the following notice out **twice** to candidates:

Turn to **page 4** of the **question paper** and look at **question 7(c)**.

Cross out the word 'Find' and replace it with 'Determine'.

The beginning of the question should now read:

'Determine the coordinates ...'