

Question 3

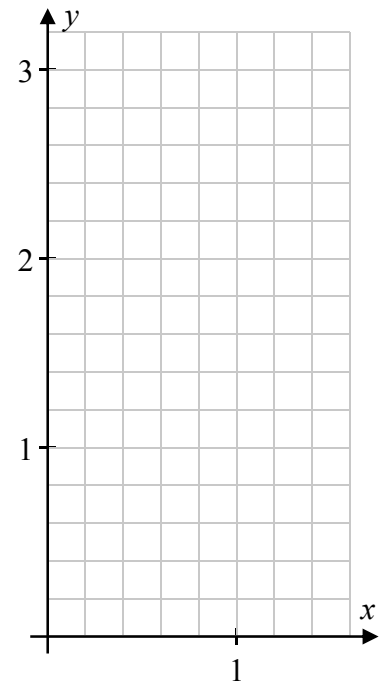
(25 marks)

- (a) (i) $f(x) = \frac{2}{e^x}$ and $g(x) = e^x - 1$, where $x \in \mathbb{R}$.

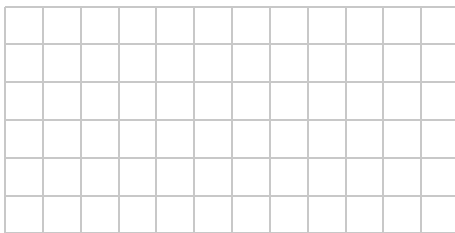
Complete the table below. Write your values correct to two decimal places where necessary.

x	0	0.5	1	$\ln(4)$
$f(x) = \frac{2}{e^x}$				
$g(x) = e^x - 1$				

- (ii) In the grid on the right, use the table to draw the graphs of $f(x)$ and $g(x)$ in the domain $0 \leq x \leq \ln(4)$. Label each graph clearly.



- (iii) Use your graphs to estimate the value of x for which $f(x) = g(x)$.



- (b) Solve $f(x) = g(x)$ using algebra.

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