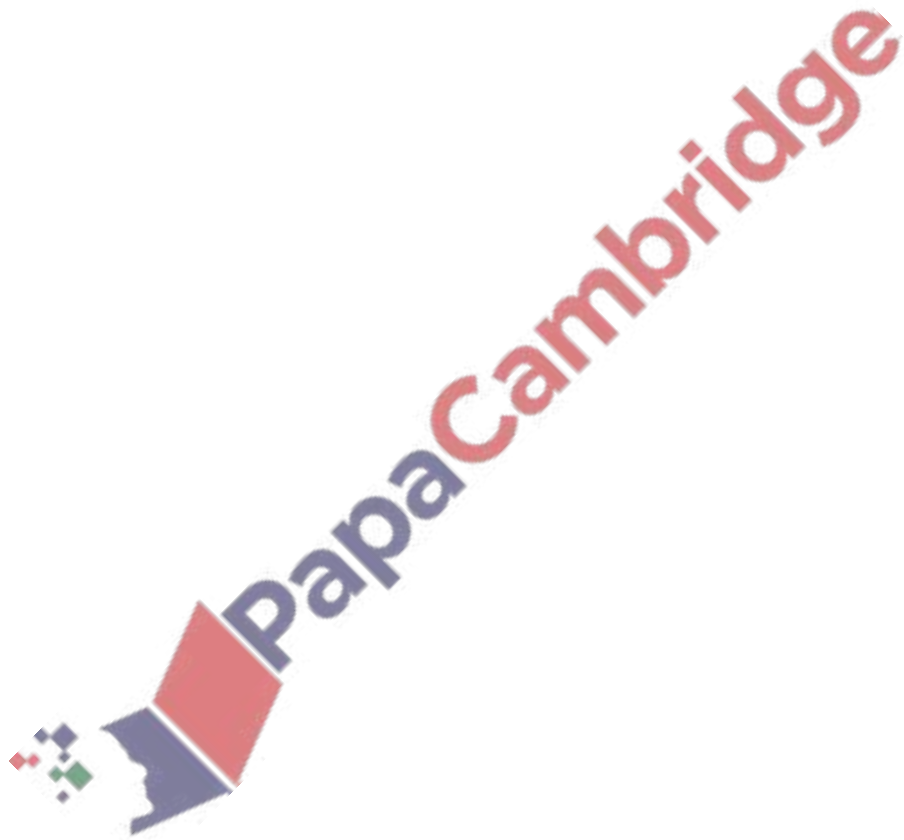


Logarithm and Exponential Functions – 2021 A2

1. June/2021/Paper_9709/31/No.2

Find the real root of the equation $\frac{2e^x + e^{-x}}{2 + e^x} = 3$, giving your answer correct to 3 decimal places.

Your working should show clearly that the equation has only one real root. [5]



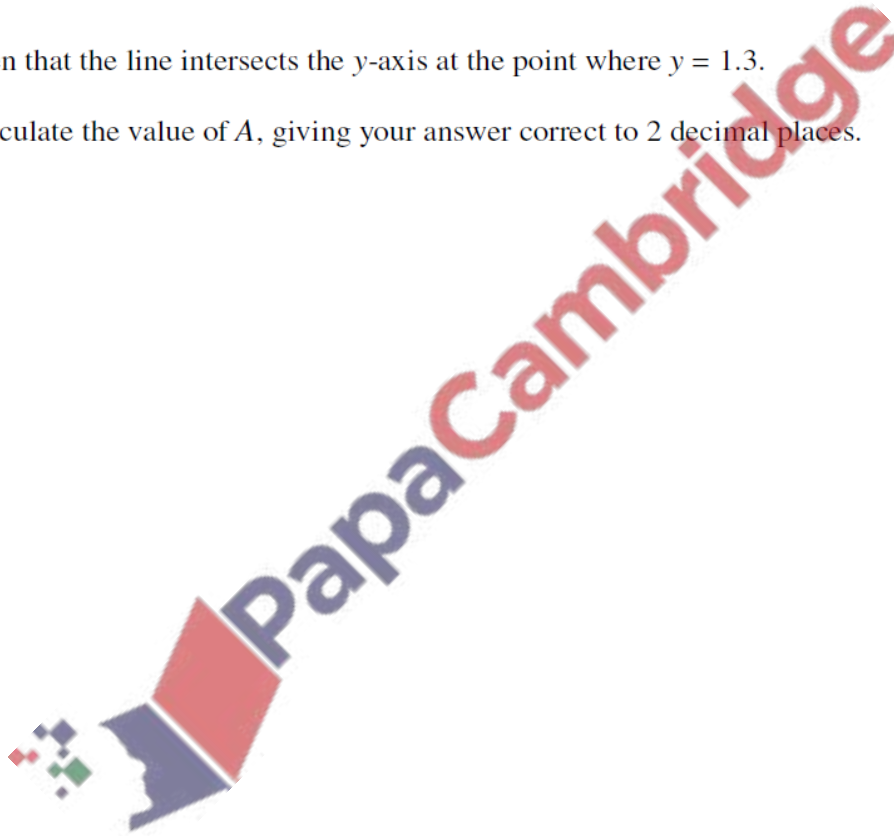
2. June/2021/Paper_9709/32/No.3

The variables x and y satisfy the equation $x = A(3^{-y})$, where A is a constant.

- (a) Explain why the graph of y against $\ln x$ is a straight line and state the exact value of the gradient of the line. [3]

It is given that the line intersects the y -axis at the point where $y = 1.3$.

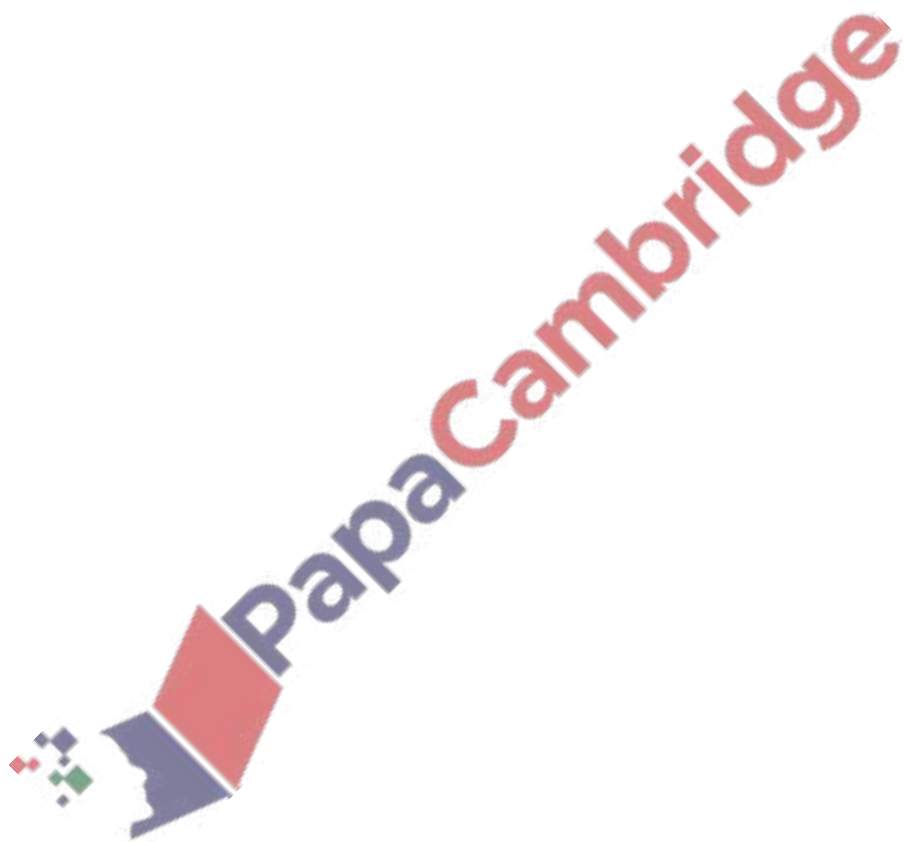
- (b) Calculate the value of A , giving your answer correct to 2 decimal places. [2]



3. June/2021/Paper_9709/33/No.2

Solve the equation $4^x = 3 + 4^{-x}$. Give your answer correct to 3 decimal places.

[5]



4. March/2021/Paper_9709/32/No.1

Solve the equation $\ln(x^3 - 3) = 3 \ln x - \ln 3$. Give your answer correct to 3 significant figures. [3]

