

MATH 1100 Section A 2008 Quiz 2

1. (2.5) Solve the equation for x .

$$e^{4x+1} - 5 = 0.$$

Solution:

$$e^{4x+1} - 5 = 0$$

$$\Leftrightarrow e^{4x+1} = 5$$

$$\Leftrightarrow \ln(e^{4x+1}) = \ln 5$$

$$\Leftrightarrow 4x + 1 = \ln 5$$

$$\Leftrightarrow 4x = \ln 5 - 1$$

$$\Leftrightarrow x = \frac{1}{4}(\ln 5 - 1).$$

□

2. (2.5) Determine the limit

$$\lim_{x \rightarrow 1^-} \frac{x - 1}{x^2 - 2x + 1}.$$

Solution:

$$\begin{aligned} & \lim_{x \rightarrow 1^-} \frac{x - 1}{x^2 - 2x + 1} \\ = & \lim_{x \rightarrow 1^-} \frac{x - 1}{(x - 1)^2} = \lim_{x \rightarrow 1^-} \frac{1}{x - 1} \\ = & -\infty. \end{aligned}$$

□