

Math101 Term171
Sec20 Quiz 2

Name	ID	Sr
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Q1(5points) For what values of a, b is the following function continuous on $[-2,10]$

$$f(x) = \begin{cases} \lfloor x \rfloor - 3 & \text{if } -2 \leq x < -1 \\ 2x + a & \text{if } -1 \leq x < 2 \\ 5x - b & \text{if } x \geq 2 \end{cases}$$

Where $\lfloor x \rfloor$ denotes the greatest integer less than or equal to x . (Show your work)

Q2)(5 points) Where is $f(x) = \frac{\sqrt{x^2-9}}{x^2-6x-7}$ continuous ? (Show your work)

Q3 (5 points) Find the largest number $\delta > 0$ such that
if $0 < |x - 1| < \delta$ then $\left| \frac{x}{x+1} - \frac{1}{2} \right| < \frac{1}{4}$ (Show your work)

Q4) (5 points) Show that there is a root for the equation $\ln x = e^{-x}$ in the interval $[1, e]$ (Mention which theorem is used)