| Name | ID | SEC | Sr |
|------|----|----|----|

Q1) Find the numbers at which $f(x) = \begin{cases} [\![x]\!] & if -2 \le x < 0 \\ x & if\ 0 \le x < 1 \\ 3x - 2 & if\ 1 \le x \le 2 \end{cases}$ is discontiuous. At which

of these numbers is $f$ continous from the right, from the left, or neither. Also if the function is not continuous at a point, state the type of dicontiuity.

Q2)For what values of $a$ and $b$ is the function
$$g(x) = \begin{cases} a\,x - 2b &, & x \le 0 \\ x^2 + 3a - b &, & 0 < x \le 2 \\ 3x - 5 &, & x > 2 \end{cases}$$

Continuous everywhere.

Q3) Use the graph of $f(x) = \dfrac{1}{x}$ to find a number $\delta > 0$ such that,

$$if\ 0 < |x - 2| < \delta \Rightarrow \left|f(x) - \dfrac{1}{2}\right| < \dfrac{1}{8}$$

Q4) Find all vertical and horizontal asymptotes of the function

$$f(x) = \dfrac{\sqrt{1 + 4x^6}}{8 - x^3}$$