KFUPM – Department of Mathematics & Statistics Code **01**

MATH101 – Term 181

Quiz 2 (Duration: 25 Minutes)

Name: _____ ID #: _____Section: _____

Question 1 (3 points) Find the horizontal asymptotes of

$$f(x) = \frac{|x^3| - x^2 + 3}{2x^3 - x}$$

Question 2 (3 points) Use a graph to find a number δ such that

$$\text{if} \quad |x+1| < \delta, \qquad \text{then} \qquad \left|\sqrt{3-x} - 2\right| < 0.2$$

Question 3 (4 points) Consider the function

$$f(x) = \begin{cases} \ln(1-x), & x < 0 \\ x^2 - x, & 0 \le x < 2 \\ \dfrac{x}{x-4}, & x \ge 2 \end{cases}$$

a) Is the function continuous at $x = 0$? (Justify your answer)

b) Where is the function discontinuous? (Justify your answer)