

KFUPM                      SEM I (Term 041)    Name: \_\_\_\_\_    Serial #: \_\_\_\_\_  
MATH 101-6-11    Quiz # 2                      ID: #: \_\_\_\_\_    Section #: \_\_\_\_\_

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1. (5-points) Given  $f(x) = \begin{cases} -3x^3 - 5x^2 + 1, & x \leq -1 \\ \frac{1 - 3x - 6x^3}{11 + 7x + 5x^3}, & x > -1 \end{cases}$ . Find each of the following limits (show your steps):

(a)  $\lim_{x \rightarrow -\infty} f(x)$ .

(b)  $\lim_{x \rightarrow +\infty} f(x)$ .

2. (5-points) Find  $\lim_{x \rightarrow -\infty} (\sqrt{4x^2 + 5x} + 2x)$ . (show your steps)

3. (5-points)

(a) Prove that  $\lim_{x \rightarrow -1} \left( \frac{7}{2}x + 5 \right) = \frac{3}{2}$ .

(b) Use Part (a) to find  $\delta$  if  $\epsilon = 0.014$ .