KFUPM Summer Term (071) Name: _____ Serial #: _____

MATH 101 Quiz # 2 ID: #: _____ Sec. #: _____

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1. Evaluate the limit if it exists. **If the limit does not exist, explain why**

   (a) (5-points) $\lim_{t\to 0}\left[t^{-1}-5t^{-1}(25+t)^{-1/2}\right]$.

   (b) (5-points) $\lim_{x\to -2/3}\dfrac{3x+2}{|6x+4|}$.

2. (5-points) Find the numbers at which the following function is discontinuous, and classify the type of the discontinuity

$$f(x) = \begin{cases} x + 4, & x \leq 2 \\ \dfrac{2x - 10}{x - 4}, & 2 < x < 4 \\ \dfrac{9}{x}, & x \geq 4 \end{cases}$$

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1. Evaluate the limit if it exists. **If the limit does not exist, explain why**

(a) (5-points) $\lim_{t\to 0}\left[3t^{-1}(9+t)^{-1/2}-t^{-1}\right]$.

(b) (5-points) $\lim_{x\to -3/4}\dfrac{4x+3}{|12x+9|}$.

2. (5-points) Find the numbers at which the following function is discontinuous, and classify the type of the discontinuity

$$f(x) = \begin{cases} \dfrac{5}{x}, & x \leq 3 \\ \dfrac{3x+4}{x-3}, & 3 < x < 4 \\ 2x - 3, & x \geq 4 \end{cases}$$