

"QUIZ" for Lecture 6

NAME: (print!) Fady Besada Section: 22

E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q6FirstLast.pdf) ASAP BUT NO LATER THAN Sept. 24, 8:00pm

1. Find the limit if it exists, or show that the limit does not exist.

$$\lim_{(x,y) \rightarrow (0,0)} \frac{2x}{2x+3y}$$

$$\rightarrow y = cx$$

$$\rightarrow \lim_{x \rightarrow 0} \frac{2cx}{2x+3cx} = \lim_{x \rightarrow 0} \frac{2c}{2+3c} = \frac{2c}{2+3c}$$

\rightarrow This limit doesn't exist because it depends on c .

2. Find the limit if it exists, or show that the limit does not exist.

$$\lim_{(x,y) \rightarrow (0,0)} \frac{x^5}{x^2+y^2}$$

$$\rightarrow x^2+y^2=r^2$$

$$\rightarrow x = r \cos \theta$$

$$\rightarrow y = r \sin \theta$$

$$\rightarrow \lim_{r \rightarrow 0} \left(\frac{r^5 \cos^5 \theta}{r^2} \right) = \lim_{r \rightarrow 0} (r^3 \cos^5 \theta) = \underline{0}$$

\rightarrow The limit does exist and it is equal to 0.