"QUIZ" for Lecture 6

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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.

$$\lim_{(x,y)\to(0,0)} \frac{2x}{2x + 3y} \quad .$$

Plugging $y = cx$ *in this equation, we get* $\frac{2x}{(2+3c)x} = \frac{2}{2+3c}$ *whose value depends on* c.
So, the limit does not exist.

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

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

plugging $y = cx$ *in this equation*
we get $\frac{x^5}{(1+c^2)x^2} = \frac{x^3}{(1+c^2)} = 0$
if we transfer the $x^2 + y^2 = r^2$
the equation becomes $\lim_{r\to 0} r^3 \cos\theta^5 = 0$
So, the limit does exist and equal to 0.