"QUIZ" for Lecture 6

NAME: (print!) Wenhao Li **Section:** 22,23,24

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.

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

Both top and bottom vanish when we
plug-in (x, y) = (0, 0) so we must go on.

Plug in y=cx
lim(x)->0 2x/2x+3cx
=lim(x)->0 2x/x(2+3c)
=lim(x)->0 2/2+3c
=2/2+3c
The limit does not exist since you
get different limits when you approach the
point (0, 0) on different lines.

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

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

Both top and bottom vanish when we
plug-in (x, y) = (0, 0) so we must go on.

Plug in y=cx
lim(x)->0x^5/x^2+c^2x^2
= lim(x)->0x^5/x^2(1+c^2)
=lim(x)->0x^3/(1+c^2)
=0
: The limit exists and equals 0.