

Name: _____

**QUIZ 2 EXTRA CREDIT
CALCULUS III
DUE 01-30**

The following problem is worth 2 points extra credit on Quiz #2. You may work with other classmates, but you must write up your own solution. You may also ask me questions by e-mail or in office hours, but we will **not** solve this problem in class before the extra credit is collected.

0/0 is not a valid answer to a limit; it indicates the need for further simplification.

(c) has a definite, yes-or-no answer; “it might exist” or “it might not exist” are *not* enough. The answer is *not* “no, because the function is undefined when $xy = 6$ ”; we simply ignore the points where the function is undefined, and consider the values of the function everywhere else.

Consider the limit

$$\lim_{(x,y) \rightarrow (3,2)} \frac{(x-3)(y-2)}{(xy-6)^2}.$$

We consider only paths where the function is defined.

- (a) Compute the limit along the path $x = 3$. **Show your work.**
- (b) Compute the limit along the path $y = 2$. **Show your work.**
- (c) Does the limit exist? Explain why or why not.