SM 223$_{\text{TSM}}$ Quiz #9 12 Oct 2010 Last Name _____ **Section** ○ **4041** ○ **5041** ○ **6041**

Time Limit: 4 minutes

Instructions: Closed book. Closed notes. Calculator allowed.

Instructions for all quizzes: **Do not discuss any aspect of this quiz with other midshipmen until after 6th period.**

Print your last name above. Also, fill in the bubble for your section.

Fill the bubble for the correct answer. Also, write your answers in any blanks provided.

Your work will not be graded unless requested.

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1. Complete the "limit" definition of the partial derivative of $f(x, y)$ with respect to y at the point (a, b):

$$\frac{\partial f}{\partial y}(a, b) = f_y(a, b) = \quad \_\_\_\_\_$$

2. (a) Use the table of values for $T(x, y)$ to estimate $T_y(0, 0)$.

○ 1
○ 5
○ 25
○ 5/2
○ 20/3
○ none of above; correct is ____

$T(x,y)$	$y = 0$	$y = 0.2$	$y = 0.4$
$x = 0$	5	10	16
$x = 0.3$	7	11	15
$x = 0.6$	11	12	15

(b) Suppose the function $T(x, y)$ in the previous problem represents temperature in degrees Celsius at the point (x, y) on a metal plane in the xy-plane with the x-axis pointing east and the y-axis pointing north. Distance is measure in feet. A bug is at the origin.

Explain what your numerical answer in (a) means to the bug on the metal plate.

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