

TMATH 126: Quiz 3

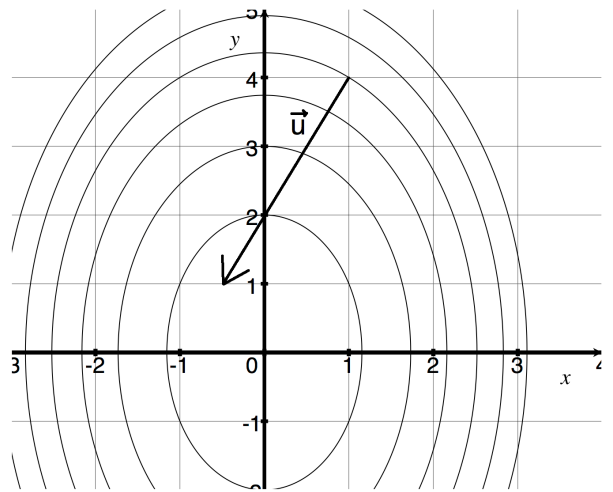
You may use:

- any kind of calculator that cannot access the internet and
- a one-sided 3×5 " card for this quiz.

Show *all* your supporting work (numerically, algebraically, or geometrically) for each and simplify. *No credit* is given without supporting work.

1. [6] TRUE/FALSE: Circle T in each of the following cases if the statement is *always* true and provide a brief justification. Otherwise, circle F and provide a counterexample or brief justification.

T F Let \vec{u} be the vector shown on the contour graph to the right. Then $D_{\vec{u}}f(1, 4)$ is zero.

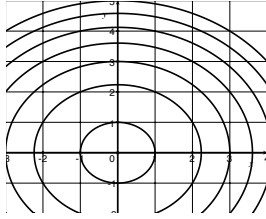


T F (WebHW13 #1) We have to use the product rule to find $\frac{\partial}{\partial x}(x \cos(xy))$

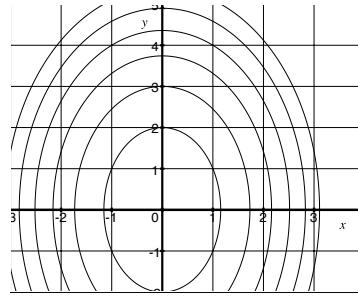
2. [4] (Suggested §13.3 #29) Let $f(x, y) = x \cos(xy)$, find $\frac{\partial f}{\partial y}$.

3. [3] (3D Function Wks #2) Match the function with its level curves.
Justify your answer.

$$a(x, y) = 5000 - 30x^2 - 10y^2$$



$$b(x, y) = x^2 + y^2$$



4. Let $f(x, y) = \frac{x}{y}$.

(a) [3] (WebHW12 #19) Use any method to find $\lim_{h \rightarrow 0} \frac{f(x, y+h) - f(x, y)}{h}$.

(b) [4] (WrittenHW7 §13.6 #1) Find $D_{\vec{u}}f(1, 1)$ where $\vec{u} = \langle \frac{3}{5}, \frac{4}{5} \rangle$.