Quiz 14.1 - 14.5 _____ Name: _____

Show all work and circle answers. 15 pts. Per.: _____

No Calculators. 3 points each.

1) Where is the function $f(x, y) = \dfrac{\sqrt{x}}{x - y^2}$ continuous?

2) Evaluate $\dfrac{\partial}{\partial y}\left[\dfrac{x^4 - y}{x^2 + y}\right]$.

3) Find $\dfrac{\partial^2}{\partial y \partial x}\left[\dfrac{4x^2}{y} + \dfrac{y^2}{2x}\right]$. Be sure to differentiate in the correct order.

4) Let $w(x, y, z) = xy^2 + xz^2$, $x(s, t) = t + 1$, $y(s, t) = t - 1$, and $z(s, t) = st$.
Using the appropriate chain rule, find
(a) $\dfrac{\partial w}{\partial t}$ in general & (b) $\dfrac{\partial w}{\partial t}$ when $t = 0$, $s = 1$.

5) Write the symbolic expression for the *definition* of the first partial derivative of $f(x, y)$ with respect to x.

Bonus) Explain what a partial derivative of f means in terms of the graph of f. (+2 pts.)

Contour Quiz

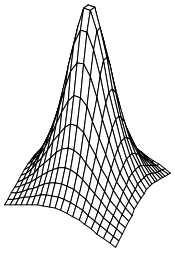
_____ 5 pts.

Name:_____

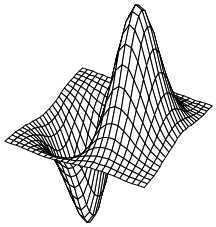
Per.: ____

Write the letter of the level curve graph that matches the three-dimensional surface. (1 point each.)

_____ 1.



_____ 2.



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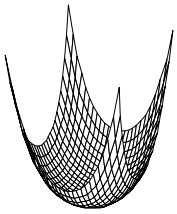

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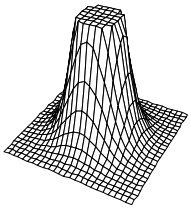
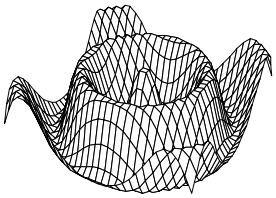
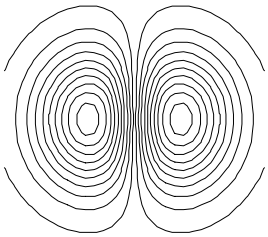


_____ 5.



A.



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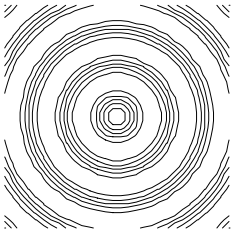

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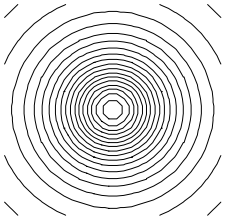

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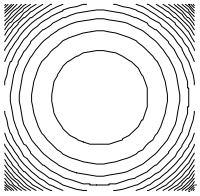

E.