# Math 201-171        Quiz 7                                          (B)

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**Q.1:** Find linear approximation of $f(x, y) = x^2 e^y$ at $(1, 0)$ and use it to approximate

$f(1.1, -0.05)$.

**Q.2:** Compute $\dfrac{\partial z}{\partial x}$ and $\dfrac{\partial x}{\partial y}$ for the function $x 3^y + x \tan^{-1}(yz) = 5$.

**Q.3:** Find the directional derivative of $f(x, y, z) = 2ye^{3xyz}$ at the point $(1, 1, 0)$ in the direction

$\vec{u} =< -1, 2, -2 >$

**Q.4:** Find linear approximation of $f(x, y) = 3x^2 + y^2$ at $(1, 2, 7)$ and use it to approximate $f(1.05, 1.99)$.