

Quiz #7; Tuesday, date: 03/06/2018
MATH 53 Multivariable Calculus with Stankova
Section #114; time: 2 – 3:30 pm
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Student name:

1. Use the Chain Rule to find the indicated partial derivatives.

$$T = \frac{v}{u + 2v}, \quad u = pq\sqrt{r}, \quad v = p\sqrt{qr};$$

Find $\partial T/\partial p$, $\partial T/\partial q$, $\partial T/\partial r$ when $p = 1, q = 1, r = 4$.

2. *True / False?* There exists a function not differentiable at the origin that is continuous at the origin and has partial derivatives at the origin.
3. *True / False?* Suppose $g(x, y)$ is a linear function and $f(x, y)$ is a two-variable function, not necessarily linear. If

$$f(0, 0) = g(0, 0) \quad \text{and} \quad \lim_{(x,y) \rightarrow (0,0)} |f(x, y) - g(x, y)| \rightarrow 0$$

then g is a good linear approximation to f , so f is a differentiable function.