

Quiz0-1

score _____/10

Names _____

*Must be done with one or two partners! Sign to acknowledge***Extra Credit***that **all contributed and understand.***

Signatures _____

Math 232

Fall 2008

SHOW WORK and DON'T SKIP any steps, and JUSTIFY EACH STEP giving appropriate reasons!!

1. Let $g(x)$ be a differentiable function. **Derive** the result that $\frac{d}{dx}((g(x))^{\frac{1}{2}}) = \frac{1}{2}(g(x))^{-\frac{1}{2}}g'(x)$ using the limit definition of the derivative. That is, letting $f(x) = g(x)^{\frac{1}{2}}$, start with either $f'(c) = \lim_{x \rightarrow c} \frac{f(x) - f(c)}{x - c}$ or $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$, and end up with $f'(c) = \frac{1}{2}(g(c))^{-\frac{1}{2}}g'(c)$ or equivalently, $f'(x) = \frac{1}{2}(g(x))^{-\frac{1}{2}}g'(x)$.