# GTU, Fall 2020, MATH 101

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- \* the converse is false. Counter-example: |x| is continuous at x=0 but not differentiable at x=0.
- \* if f is not continuous then f is not differentiable

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proof of the product rule:

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$$= f'(x)g(x) + f(x)g'(x)$$

since g is continuous.

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$$f'(a) = 1 - \frac{1}{a^2} = -3 \implies -\frac{1}{a^2} = -4 \implies a = \pm \frac{1}{2}$$

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