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10/11/2017

Math 31A Lecture Notes: Rules of Differentiation

Theorem 1; *Constant Rule*: ; a is a constant

Theorem 2; *The x-rule*:

Theorem 3; *Power Rule*: ,

Proof for Theorem 3:

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Theorem 4; *Linearity Rule*: If f, g are differentiable and a, b are constants,

(af + bg) ' = af ' + bg '

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Theorem 5; *Product Rule*: If f, g are differentiable, then:

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

Theorem 6; *Quotient Rule*: If f, g are differentiable and g(x) ≠ 0,

'(x) =

Problem: Differentiate

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