IB Math SL **More Rules**

Topic 6, Part I – Day 5 Notes

1. **A bit of History:**



*http://www.math.usma.edu/people/rickey/hm/CalcNotes/ProductRule.pdf*

 **Ex 1**: Continue Leibniz’s work. Is dxdy = d(xy)?

 x = cz + d y = z2 + bz

1. Find the derivatives of x and y, then multiply your results (so, find dxdy).
2. Find the product (cz + d)(z2 + bz), then find the derivative of your result (so, find d(xy)).
3. Did your answer from (a) = answer from (b)?

**Note:**  [To]

*http://www.math.usma.edu/people/rickey/*

*hm/CalcNotes/ProductRule.pdf*

1. **Product Rule:**

If f(x) can be written as u(x)v(x), then f’(x) = u(x)v’(x) + v(x)u’(x)

**Ex 2:** Differentiate the following using the product rule:

1. y = x3 (x – 7) b) y = (3x – 1)(x3 + 2x + 4)

Verify that the Product Rule works for part a by finding the derivative another way.

 **QoH-tient Rule:**

If f(x) can be written as , then 

OR an easier way to remember this rule is to read it as follows:



“The derivative of hi divided by ho is ho d hi – hi d ho all over ho ho.” \* d= the derivative!

**Ex 3:** Differentiate the following using the quotient rule:

1.  b) 

Verify that the Quotient Rule works for part a by finding the derivative another way.