

Discussion Problems for Math 180

Tuesday, February 17, 2015

Review

1. Calculate $e^{2\ln(3)}$.
2. Under what circumstances does $(x^y)^z = x^{yz}$? Give an example of numbers x , y , and z for which this is not true.

This time

3. (a) Find the derivative of $\sin(x)^3$ using the product rule.
(b) Find the derivative of $\sin(x)^3$ using the chain rule. Does your answer agree?
4. (a) Multiply out $(2x - 1)^3$, and then take the derivative.
(b) Find the derivative of $(2x - 1)^3$ using the product rule. Does your answer agree?
5. Find the derivative of $\sqrt{x^2}$.
6. Use the chain rule and some algebra to determine the derivative of 4^x .
7. Write the equation of the tangent line to the curve $y = \sqrt{1 - x^2}$ at the point $\left(\frac{-\sqrt{3}}{2}, \frac{1}{2}\right)$.
8. What is the derivative of $\sin(\sin(\sin(\sin(x))))$?