Written Homework 5

Use implicit or logarithmic differentiation to find the derivative of the following functions. You do not need to simplify, but you must show all intermediate steps taken. Simply writing an answer will receive NO points. I should see all derivatives you take to arrive at your answer. Use the Lesson 5 worksheet as a guide for how to layout your work.

1. $y = x^2 \ln(2x)$

2. $x^3 + y^3 = 1$

3. $f(u) = \dfrac{u}{1 + \ln(u)}$

4. $y = x^{\sin x}$

5. $e^{xy} = 2y$

6. $y = (\ln x)^{\cos x}$

7. $xe^y = x - y$

8. $\cos(xy) = 1 + \sin(y)$

9. $x + 2y = \sqrt{y}$

10. Find the line tangent to the graph of $\sin(x + y) = 2x - 2y$ at the point (π, π).