Name_____

Differentiate the following functions.

1. $x^2 - 5xy + 3y^2 = 7$

2. $\sin\dfrac{x}{y} = \dfrac{1}{2}$

3. $\cos(x+y) + \sin(x+y) = \dfrac{1}{3}$

4. $\dfrac{2x+3y}{x^2+y^2} = 9$

5. $x^3 + y^3 = 8$

6. $4x^2 - 9y^2 = 17$

7. $y\tan(x+y) = 4$

8. $\dfrac{x^2-y^2}{x^2+y^2} = \dfrac{1}{3}$

9. $e^{\cos x} + e^{\sin y} = 4$

10. $xe^{x^2+y^2} = 4$

Hints:

$$\frac{d}{dx}\left(e^x\right) = e^x$$

$$\frac{d}{dx}\left(e^{f(x)}\right) = e^{f(x)} f'(x)$$