Analysis 1A Name_____
Rose

Differentiation Review

Directions: find the derivatives of the following functions, where *a*, *b*, and *k* are constants. Sometimes simplification prior to differentiation will make the work easier.

1. $f(x)=\dfrac{5}{\left(b^2-x^2\right)^2}$

2. $y=xe^{\tan x}$

3. $f(x)=\arctan\left(3x^2+1\right)$

4. $f(x)=a^{x^3-x}$

5. $f(x)=\dfrac{\sin(5-x)}{x^2}$

6. $y=\ln\left(\cos\left(\dfrac{x}{k}\right)\right)$

7. $y=\dfrac{x^3}{8}(2\ln x-1)$

8. $f(x)=\left(\cos\left(x^2+3\right)\right)^{100}$

9. $f(x)=\dfrac{x}{\csc^2 x}$

10. $f(x)=\ln\left(e^{ax^2-b}\right)$

11. $f(x)=\log_3\sqrt{\sin x}$

12. $f(x)=\arcsin\left(e^{3x}\right)$

13. $y=(\tan x)^x$

14. $y=(x+1)^{\sin x}$

15. $x^3-4x^2y+y^2=17$ Find $\dfrac{dy}{dx}$

16. $\cos(xy)=x-2y$ Find $\dfrac{dy}{dx}$