

Calculus H  
Ch. 4 #8

Name \_\_\_\_\_

Differentiate.

1)  $f(x) = \frac{4^x}{\tan 7x}$  \_\_\_\_\_

2)  $y = \cot(x^3)$  \_\_\_\_\_

3)  $y = \sin x \cot x$  \_\_\_\_\_

4)  $y = \csc^4(\sqrt[3]{x})$  \_\_\_\_\_

5)  $y = \ln(\sqrt{x+3})$  \_\_\_\_\_

6)  $f(x) = \frac{3x-8}{2-11x}$  \_\_\_\_\_

7)  $f(x) = e^x \cdot (4x-5)^3$  \_\_\_\_\_

8)  $f(x) = \frac{\sqrt{x}}{\cos x}$  \_\_\_\_\_

9.  $y = \tan^{-1}(3x^7)$ . \_\_\_\_\_

10.  $y = \csc^{-1}(e^x + 1)$  \_\_\_\_\_

11. Let  $f(x) = \begin{cases} ax^3 + 1, & x \leq 1 \\ (x-2)^2 + b, & x > 1 \end{cases}$ .

Show all work and use proper limit notation.