

MATH 152
Mrs. Bonny Tighe

QUIZ 3A
7.5-7.7
25 points

NAME _____

SECTION _____ Wed 9/21/05

1. Simplify: a) $\sec(\tan^{-1} \frac{4}{3}) =$ _____

b) $\csc(\cos^{-1} x) =$ _____

2. Differentiate the following.

a) $y = \tanh^{-1}(\sin(\cos x))$

b) $f(x) = \operatorname{arccot}^3(x)$

c) $f(x) = \cosh^{-1} \sqrt{x}$

d) $f(x) = (\sinh^{-1} x)(\tan^{-1} x)$

3. Evaluate: a) $\int \frac{\tan^{-1} x}{1+x^2} dx =$ _____

b) $\int \frac{e^{2x}}{\sqrt{1-e^{4x}}} dx$

c) $\int \frac{1}{x\sqrt{x^2-1}} dx =$ _____

d) $\int_0^1 \frac{1}{\sqrt{9x^2+1}} dx =$ _____

4. Find the limit. Use L'Hospital's Rule where appropriate. If there is a more elementary method, consider using it. If L'Hospital's Rule doesn't apply, explain why.

a) $\lim_{x \rightarrow 0^+} (\tan 2x)^x = \underline{\hspace{2cm}}$ b) $\lim_{x \rightarrow \infty} \left(\frac{x-1}{x+1} \right)^x = \underline{\hspace{2cm}}$ c) ~~$\lim_{t \rightarrow 0} \frac{1-e^{3t}}{t} = \underline{\hspace{2cm}}$~~

d) $\lim_{x \rightarrow 0^+} x \ln x = \underline{\hspace{2cm}}$ e) $\lim_{x \rightarrow 0^+} \sin x \cot 2x = \underline{\hspace{2cm}}$ c) $\lim_{t \rightarrow 0} \frac{1-e^{3t}}{t} = \underline{\hspace{2cm}}$

5. Find the numerical value of each expression:

a) $\tan(\sin^{-1} \sqrt{2}/2) = \underline{\hspace{2cm}}$ b) $\cosh(0) = \underline{\hspace{2cm}}$ c) $\sin^{-1}(1) = \underline{\hspace{2cm}}$