

MATH 152
Mrs. Bonny Tighe

QUIZ 1A
7.1-7.2
25 points

NAME _____
Wednesday 9/7/05

1. Find a formula for the inverse of the function $f(x) = \frac{3x-1}{x+3}$

2. Find dy/dx if $ye^x = y^3 + e^{xy}$

3. Find the derivative: a) $y = (3e^{\sqrt{x}})\left(\frac{1}{x^3}\right)$

b) $g(x) = \frac{e^{\csc x}}{2 - \sqrt{x}}$

4. Find $(f^{-1})'(a)$ for $f(x) = \frac{x+1}{2-x}$ at $a = 2$.

5. Find the limit.

a) $\lim_{x \rightarrow \infty} (e^{-x} + 1) = \underline{\hspace{2cm}}$ b) $\lim_{x \rightarrow \infty} \frac{e^x - e^{-x}}{e^x + e^{-x}} = \underline{\hspace{2cm}}$ c) $\lim_{x \rightarrow -\infty} (-e^{2x} - 1) = \underline{\hspace{2cm}}$

6. Show that the function $y = e^x + e^{-x/2}$ satisfies the differential equation $2y'' - y' - y = 0$

7. Evaluate the integral:

a) $\int e^{-x} \sqrt{e^{-x} + 3} \, dx$ b) $\int e^{3x} \sec(e^{3x}) \tan(e^{3x}) \, dx$ c) $\int_1^4 \frac{e^{\sqrt{x}}}{\sqrt{x}} \, dx$