

MATH 152
Mrs. Bonny Tighe

QUIZ 1
7.1-7.2
25 points

NAME _____
Wednesday 9/7/05

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

2. Find the limit.

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

3. Find dy/dx if $xy = y^3 + e^x e^y$

4. Find a formula for the inverse of the function $f(x) = \frac{x-1}{2x+3}$

5. Find the derivative: a) $y = (2e^{\sqrt{x}})\left(\frac{1}{x}\right)$

b) $g(x) = \frac{e^{\tan x}}{2 + \sqrt{x}}$

6. Evaluate the integral:

a) $\int e^{-x} \sqrt{e^{-x} + 3} \, dx$

b) $\int e^{3x} \sec(e^{3x}) \tan(e^{3x}) \, dx$

c) $\int_1^4 \frac{e^{\sqrt{x}}}{\sqrt{x}} \, dx$

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