MATH 1572 | Calculus II: Exam 1 | 10/1/2009

Directions: This is a two part exam: The second part which is to be handed in at $10AMTuesday10/6$ is to redo the exam for extra credit in groups of at most two. You should circle your answer and then the answer given in the textbook and commnet if they agree. The extra credit should be the actual problems from the text which are:

$1, 11, 13, 15, 17, 19, 21, 25, 33, 37, 29, 41, 47, 67$

Hints: $\int \csc x \, dx = \ln(\csc x - \cot x)$ $\int \cot x \, dx = \ln(\csc x)$

1. (1) $\int \cos(x)(1 + sin^2(x)) \, dx$
2. (11) $\int \dfrac{x-1}{x^2 - 4x + 5} \, dx$
3. (13) $\int \sin^3 x \ \cos^5 x \, dx$
4. (15) $\int \dfrac{dx}{(1-x^2)^{\frac{3}{2}}}$
5. (17) $\int_0^{\frac{\pi}{2}} x \sin(x) \, dx$
6. (19) $\int e^{x+x^2} \, dx$
7. (21) $\int \dfrac{x^2}{1+x^2} \, dx$
8. (25) $\int \dfrac{x^2 - x + 7}{x^2 - 2x - 8} \, dx$
9. (33) $\int \sqrt{4 - x^2} \, dx$
10. (37) $\int_0^{\frac{\pi}{r}} \sin^2 x \, dx$
11. (39) $\int \dfrac{dx}{x(1-x)}$
12. (41) $\int_0^{\frac{\pi}{4}} x \tan^2(x) \, dx$
13. (47) $\int \dfrac{x^3}{(x-1)^4} \, dx$
14. (67) $\int \dfrac{\sqrt{(}1 + x^2)}{x^2} \, dx$

noindent MATH 1572 | Calculus II: Exam 1 | NAME | 9/28/2008

I. Differentiate each of the following:

1. $\tan^{-1}(e^x)$ that is $Arctan(e^x)$

2. $\sin^{-1}(1+x^2)$ that is $Arcsin(1+x^2))$
3. e^{x^3+x}

II. Integrate each of the following:

1. $\int \sin^3 x \cos^2 x \, dx$
2. $\int \sec x \, dx$
3. $\int \sin^2 x \, dx$
4. $\int \tan^3 x \, dx$
5. $\int x \sin(x) \, dx$
6. $\int \frac{xdx}{(x^2+9)}$
7. $\int \frac{dx}{(x^2+9)}$
8. $\int \frac{1}{\sqrt{9-x^2}} \, dx$
9. $\int \frac{x}{\sqrt{9-x^2}} \, dx$
10. $\int \frac{(\ln(x)}{x} \, dx$
11. $\int \ln x \, dx$
12. $\int xe^x \, dx$
13. $\int xe^{x^2} \, dx$

III. Discuss the graphs of the following as to where the function is inc/decr and con up/down find zero and assymptotes.

1. $f(x) = xe^x$