MATH 3B HOMEWORK#4 AND TRIG SUBSTITUTION

Extra office hours today (2/8 Friday): $1 - 2$ & $4 - 5$ South Hall 6431V

I. Homework#4

a) Tangent/Secant Integrals

General ideas/rules:

1) $\int \sec^4(x)dx$

2) $\int \sec^3(x)\tan^5(x)dx$

3) $\int \tan^4(x)dx$ (cf. Problem 22)

b) Cosine/Sine Integrals

General ideas/rules (review from last week):

1) $\int \frac{\cos(x)+\sin(x)}{\sin(2x)} dx$ (cf. Problem 26)

2) $\int \frac{1}{1-\sin(x)} dx$ (cf. Problem 27)

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c) Others

1) $\int \frac{4x}{\sqrt{3+2x}} dx$ (cf. Problem 4)

II. Trig Substitution

Some general rules:

Case 1)

Case 2)

Case 3)

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1) $\int x^3 \sqrt{1-x^2} dx$ (cf. Problem 29)

2) $\int \frac{x^3}{\sqrt{x^2+4}} dx$ (cf. Problem 30)

3) $\int \frac{\sqrt{x^2-16}}{x^3} dx$ (cf. Problem 35)

4) $\int x\sqrt{1-x^4} dx$ (cf. Problem 38)