Math 1552, Integral Calculus

Section 8.4: Trigonometric Substitutions

Evaluate the following integrals using any method we have learned so far: integration by parts, integrating trig functions, or trigonometric substitutions. The problems below may require any combinations of the above methods, or even just u-substitutions, to obtain the final solution.

1. $\int \frac{x^2}{(x^2+4)^{3/2}} dx$

2. $\int \frac{\sqrt{1-x^2}}{x^4} dx$

3. $\int \frac{x}{(4-x^2)^{3/2}}\,dx$

4. $\int \frac{dx}{e^x\sqrt{e^{2x}-9}}$

5. $\int \sin^2(x)\cos^2(x)dx$

6. $\int (x^2+1)e^{2x}dx$