Practice Problems for 8.2, 8.3 and 8.4

1. (8.3.57) Evaluate $\int x^3\sqrt{1-x^2}dx$ using
a. integration by parts

b. a u-substitution

c. a trig substitution

2. Do problem 4 in the previous worksheet again using another method.

3. Find the area under the curve $y = \sqrt{1+\cos 4x}$, $0 \leq x \leq \frac{\pi}{2}$

4. (8.3.35)Calculate $\int_0^{\ln 4} \frac{e^t dt}{\sqrt{e^{2t}+9}}$

5. Find all numbers a such that $\int_0^1 \frac{4a}{x^2-a^2}dx = -\ln 9$.

6. Calculate $\int_{-1}^0 \frac{x^3 dx}{x^2-2x+1}$