SECTION 5.7: INTEGRALS RESULTING IN INVERSE TRIG FUNCTIONS

1. Describe in words (and examples if you like) different strategies for picking the u in the method of integration called "Substitution."

2. Determine the Integral Formulas the result from that derivatives of inverse sine and inverse tangent.

   (a) $\int$ (b) $\int$

3. Some simple examples (+ some trig)

   (a) $\int_0^{\sqrt{2}/2} \frac{dx}{\sqrt{1-x^2}} =$

   (b) $\int_1^{\sqrt{3}} \frac{2dx}{1+x^2} =$

4. The algebra required to remember nothing more than the formulas on page 1.

(a) $\displaystyle\int \frac{dx}{1+5x^2} =$

(b) $\displaystyle\int \frac{dx}{5+x^2} =$

(c) $\displaystyle\int \frac{7dx}{4+3x^2} =$

5. You evaluate $\displaystyle\int \frac{dx}{\sqrt{1-\frac{x^2}{2}}} =$

6. The fancy formulas.

(a) $\displaystyle\int \frac{du}{\sqrt{a^2-u^2}} = \sin^{-1}\left(\frac{u}{a}\right) + C$

(b) $\displaystyle\int \frac{du}{a^2+u^2} = \frac{1}{a}\tan^{-1}\left(\frac{u}{a}\right) + C$