Math 12002
Inverse Trig Integral
Review Problems - Answers

1. $\displaystyle\int_0^1 \frac{4}{x^2+1}\,dx = \pi$

2. $\displaystyle\int_0^{\sqrt{3}/4} \frac{1}{1+16x^2}\,dx = \frac{\pi}{12}$

3. $\displaystyle\int \frac{1}{\sqrt{1-4x^2}}\,dx = \frac{1}{2}\arcsin(2x) + C$

4. $\displaystyle\int \frac{x^2}{\sqrt{1-x^6}}\,dx = \frac{1}{3}\arcsin\left(x^3\right) + C$

5. $\displaystyle\int \frac{1}{x\sqrt{x^2-4}}\,dx = \frac{1}{2}\text{arcsec}\left(\frac{x}{2}\right) + C$

6. $\displaystyle\int \frac{e^{2x}}{\sqrt{1-e^{4x}}}\,dx = \frac{1}{2}\arcsin\left(e^{2x}\right) + C$

7. $\displaystyle\int \frac{3}{x[1+(2\ln x)^2]}\,dx = \frac{3}{2}\arctan(2\ln x) + C$

8. $\displaystyle\int \frac{1}{\sqrt{2-32x^2}}\,dx = \frac{1}{4\sqrt{2}}\arcsin(4x) + C$