

## Inverse Trigonometric Functions- HW Problems

Evaluate.

1.  $\sin^{-1}\left(\frac{1}{2}\right)$

2.  $\tan^{-1}(1)$

3.  $\arccos\left(-\frac{\sqrt{3}}{2}\right)$

4.  $\sin^{-1}\left[\sin\left(\frac{13\pi}{3}\right)\right]$

5.  $\tan\left[\cos^{-1}\left(\frac{1}{4}\right)\right]$

6.  $\cos\left[\tan^{-1}(x)\right]$

Find the derivatives of the following functions

7.  $y = \sin^{-1}(x^4)$

8.  $f(x) = [\tan^{-1}(x^3)]^2$

9.  $y = \sin^{-1}(3x + 2)$

10.  $y = \sin^{-1}[\sqrt{\cos(3x)}]$

11.  $g(x) = \tan^{-1}\left(\frac{1}{x}\right)$

12.  $f(t) = \cos^{-1}(t) + \cot^{-1}(t)$

13.  $y = [\sin^{-1}(x)][\tan^{-1}(x)]$

Evaluate the following integrals.

$$14. \int \frac{dx}{4+x^2}$$

$$15. \int \frac{dx}{\sqrt{1-4x^2}}$$

$$16. \int_{\frac{1}{2}}^{\frac{\sqrt{3}}{2}} \frac{2}{\sqrt{1-x^2}} dx$$

$$17. \int \frac{t^3}{1+t^6} dt$$

$$18. \int \frac{e^{3t}}{\sqrt{1-e^{6t}}} dt$$

$$19. \int_0^{\frac{\sqrt{3}}{8}} \frac{dx}{1+64x^2}$$

$$20. \int \frac{e^x}{1+e^{2x}} dx.$$