Thursday - February 25, 2016

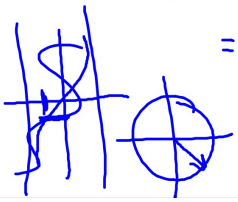
(23) $\int_{\frac{\pi}{2}}^{\pi} \frac{\sin x}{1+\cos^2 x}\,dx = -\int \frac{1}{1+u^2}\,du$

$u = \cos x$

$du = -\sin x\,dx$

$= -\left[\arctan(\cos x)\right]_{\frac{\pi}{2}}^{\pi}$

$= -\left[-\frac{\pi}{4} - 0\right] = \frac{\pi}{4}$



(17) $\int_0^{\frac{1}{\sqrt{2}}} \frac{\arcsin x}{\sqrt{1-x^2}}\,dx = \int_0^{\frac{1}{\sqrt{2}}} u\,du$

$u = \arcsin x$

$du = \frac{1}{\sqrt{1-x^2}}\,dx$

$= \left[\frac{1}{2}(\arcsin x)^2\right]_0^{\frac{1}{\sqrt{2}}}$

$= \frac{\pi^2}{32} - 0$