

Integral Worksheet – Inverse Trig and Inverse Hyperbolics

1) $\int_0^4 \frac{1}{25-x^2} dx$

Ans: $\frac{1}{5} \ln 3$

2) $\int \frac{dt}{\sqrt{e^{2t}-1}}$

Ans: $\sec^{-1} e^t + C$

3) $\int \frac{x^3}{\sqrt{1+x^4}} dx$

Ans: $\frac{1}{2} \sqrt{1+x^4} + C$

4) $\int \frac{x+2}{\sqrt{4-x^2}} dx$

Ans: $-\sqrt{4-x^2} + 2\sin^{-1}\left(\frac{x}{2}\right) + C$

5) $\int \frac{1}{\sqrt{x}\sqrt{1-x}} dx$

Ans: $2\sin^{-1}\sqrt{x} + C$

6) $\int \frac{\sqrt{x}}{\sqrt{1+x^3}} dx$

Ans: $\frac{2}{3} \sinh^{-1}(x^{3/2}) + C$

7) $\int_0^{\sqrt{3}/2} \frac{1}{1+4u^2} du$

Ans: $\frac{\pi}{6}$

8) $\int_{\pi/6}^{\pi/2} \frac{\sin x}{\sqrt{1-\cos^2 x}} dx$

Ans: $\frac{\pi}{3}$