

Worksheet--Trigonometric Substitution

1. Evaluate: $\int \frac{dx}{(25-x^2)^{\frac{3}{2}}}$ $\frac{x}{25\sqrt{25-x^2}} + C$

2. Evaluate: $\int \frac{dx}{\sqrt{x^2-4}}$ $\ln \left| \frac{x}{2} + \frac{\sqrt{x^2-4}}{2} \right| + C = \ln \left| \frac{x+\sqrt{x^2-4}}{2} \right| + C$

3. Evaluate: $\int \frac{dx}{(1+x^2)^2} = \int \frac{dx}{(\sqrt{1+x^2})^4}$ $\frac{1}{2} \arctan x + \frac{x}{2(x^2+1)} + C$

4. Evaluate: $\int_0^3 \frac{x^3}{\sqrt{x^2+9}} dx$ $-9\sqrt{2} + 18$