

1. If $\sinh x = \frac{5}{12}$, find $\cosh x$ and $\tanh x$.
2. Find $\lim_{x \rightarrow \infty} (e^x + x)^{\frac{1}{x}}$.
3. Compute $\int_1^5 \sqrt{3x+1} \, dx$.
4. Find $\int \frac{x^7}{\sqrt{x^4+6}} \, dx$.
5. Find $\int x^2 e^{2x} \, dx$.
6. Find $\int \sin^{-1} x \, dx$.
7. Compute $\int \cos^3 x \sin^3 x \, dx$.
8. Compute $\int \tan^3 x \, dx$.
9. Use a trig substitution to eliminate the square root from the integral $\int \frac{x^2}{\sqrt{4x-x^2}} \, dx$.
Do not try to evaluate the integral; just rewrite it as an integral $d\theta$ with no square root.
10. Compute $\int \frac{x^3}{\sqrt{16-x^2}} \, dx$. (Use a trig substitution.)