1. $\int \frac{x^3}{\sqrt{x^2+4}}dx$

2. $\int x^2 e^{3x} dx$

3. $\int \frac{2x-1}{(x+2)(2x+1)}dx$

A. $\int \frac{x}{4x^2+9}\,dx$

B. $\int \frac{3}{4x^2+9}\,dx$

C. $\int \frac{3}{2x+5}\,dx$

D. $\int \frac{3}{(x+2)^2}\,dx$

E. $\int \frac{1}{e^{2x}}\,dx$

$\sin^2\theta+\cos^2\theta=1$

$1+\tan^2\theta=\sec^2\theta$

$\cos(2\theta)=2\cos^2\theta-1$

$\cos(2\theta)=1-2\sin^2\theta$

$\sin(2\theta)=2\sin\theta\cos\theta$

$\frac{d}{d\theta}\sin\theta=\cos\theta$

$\frac{d}{d\theta}\cos\theta=-\sin\theta$

$\frac{d}{d\theta}\tan\theta=\sec^2\theta$

$\frac{d}{d\theta}\sec\theta=\sec\theta\tan\theta$

$\frac{d}{d\theta}\cot\theta=-\csc^2\theta$

$\frac{d}{d\theta}\csc\theta=-\csc\theta\cot\theta$

$\sec\theta=\frac{1}{\cos\theta}$

$\csc\theta=\frac{1}{\sin\theta}$

$\tan\theta=\frac{\sin\theta}{\cos\theta}$

$\cot\theta=\frac{\cos\theta}{\sin\theta}$

if $\sin\theta=x$

and $-\pi/2\le\theta\le\pi/2$

then $\sin^{-1}(x)=\theta$