Integrate $\int \frac{1}{4\sin x - 3\cos x}\,dx$

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$$\sin 2x = 2\sin x\cos x$$

$$\cos 2x = \cos^2 x - \sin^2 x$$

$$\sin x =$$

$$\cos x =$$

$$\sin 2x = 2\sin x\cos x$$

$$\sin x =$$

$$\sin x = 2\left(\frac{\qquad}{\qquad}\right)\left(\frac{\qquad}{\qquad}\right)$$

$$\sin x =$$

$$\cos 2x = \cos^2 x - \sin^2 x$$

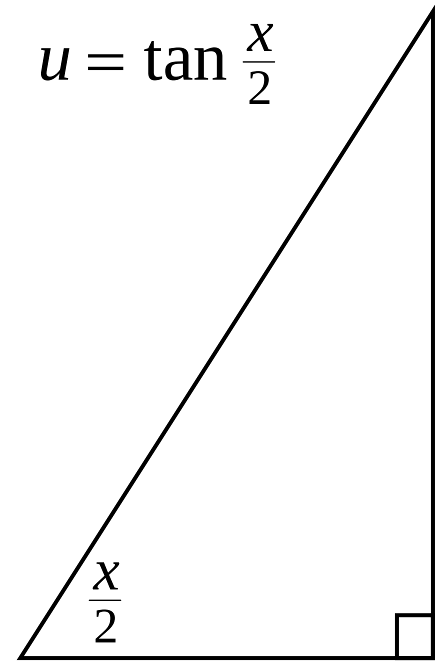
$$\cos x = \qquad - \qquad$$

$$\cos x = \left(\frac{\qquad}{\qquad}\right)^2 - \left(\frac{\qquad}{\qquad}\right)^2$$

$$\cos x = \frac{\qquad}{\qquad} - \frac{\qquad}{\qquad}$$

$$\cos x = \frac{\qquad}{\qquad}$$

$$u = \tan\frac{x}{2}$$



$$-\frac{\pi}{2} < \frac{x}{2} < \frac{\pi}{2}$$

$\sin x =$ ______

$\cos x =$ ______

$u = \tan \frac{x}{2}$

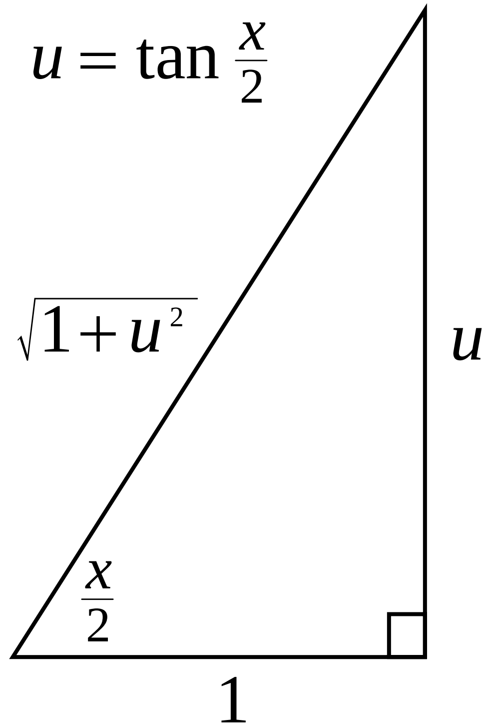
$\frac{x}{2}$

$\frac{1}{2} =$

$\frac{1}{2}\, dx =$

$dx =$

$u = \tan \frac{x}{2}$



$-\frac{\pi}{2} < \frac{x}{2} < \frac{\pi}{2}$

$$\int \frac{1}{4\sin x - 3\cos x}\, dx$$

$$u = \tan\frac{x}{2}$$

$$dx = \frac{2}{1+u^2}\, du$$

$$\sin x = \frac{2u}{1+u^2}$$

$$\cos x = \frac{1-u^2}{1+u^2}$$

$$\int \frac{1}{\left[4\left(\frac{\qquad}{\qquad}\right) - 3\left(\frac{\qquad}{\qquad}\right)\right]} \cdot \frac{\qquad}{\qquad}$$

$$\int \frac{2}{\qquad\qquad}\, du = \int \frac{2}{\qquad\qquad}\, du = \int \frac{2}{\qquad\qquad}\, du$$

$$\int \frac{2}{3u^2+8u-3}\,du = \int \frac{2}{(\quad)(\quad)}\,du$$

Partial Fraction Decomposition!!!!

$$\frac{2}{(3u-1)(u+3)} = \frac{}{(3u-1)} + \frac{}{(u+3)}$$

$$LCD =$$

$$2 = A(\quad) + B(\quad)$$

$u = -3 \Rightarrow$	$u = \frac{1}{3} \Rightarrow$

$$\int \frac{2}{(3u-1)(u+3)}\,du = \int \frac{1}{(\qquad)}\,du - \int \frac{1}{(\qquad)}\,du$$

$$= \frac{1}{5}\int \frac{\qquad}{(\qquad)}\,du - \frac{1}{5}\int \frac{\qquad}{(\qquad)}\,du$$

$$= \frac{1}{5}\ln\left|\qquad\right| - \frac{1}{5}\ln\left|\qquad\right| +$$

$$= \frac{1}{5}\ln\left|\frac{\qquad}{\qquad}\right| + \quad = \frac{1}{5}\ln\left|\frac{\qquad}{\qquad}\right| +$$