Math 141 name Barry Schmelly

Quiz 1 B

January 15, 2016 id# ____-____-____-____

NO Calculators, don't need them.

1. Find the indefinite integral. $\int \frac{x}{\sqrt{x^2-1}}dx$

$\int x(x^2-1)^{-1/2}dx$

$u = x^2-1$

$du = 2x\,dx$

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

$\frac{1}{2}\int u^{-1/2}du$

$= \frac{1}{2}(2u^{1/2}) + C$

$= u^{1/2} + C$

$= (x^2-1)^{1/2} + C$

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2. Find the indefinite integral. $\int \frac{1}{x^2+4}dx = \frac{1}{2}\arctan\left(\frac{x}{2}\right) + C$

$u = x^2+4$

$du = 2x\,dx$

$u = x$

$a = 2$

$du = dx$

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3. Find the indefinite integral. $\int [\sec x(\sin x - 1)]dx$

$\int (\sec x \sin x - \sec x)\,dx$

$\int \left(\frac{1}{\cos x}\sin x - \sec x\right)dx$

$\int (\tan x - \sec x)\,dx$

$= -\ln|\cos x| - \ln|\sec x + \tan x| + C$