AB Calculus Ch 6 Anti-Derivatives — Name________________________________

Monday 12 February 2018 **HOMEWORK** — Period 2 3 4 5

Find the Derivatives in part (a) & column 1. From your understanding of the patterns for derivatives, find the anti-derivatives in part (b) & (c), columns 2 & 3. **Show work in your HW notebook. There is not enough room here!**

#6 (a) To find the derivatives, use quotient rule for $\cot(x)=\frac{\cos(x)}{\sin(x)}$ & power w/chain for $\csc(x)=\frac{1}{\sin(x)}$.

Find Derivative	Find Anti-Derivative	Find Anti-Derivative
1*a*. $F(x)=x^3-x^2+x+7$ $\frac{dF}{dx}=f(x)=$	1*b*. $f(x)=x^2+x-4$ $F(x)=\int(x^2+x-4)dx$ $F(x)=$	1*c*. $f(x)=4x^3-2x^2+5x+1$ $F(x)=\int(4x^3-2x^2+5x+1)dx$ $F(x)=$
2*a*. $F(x)=\sin(x)+\cos(x)$ $\frac{dF}{dx}=f(x)=$	2*b*. $f(x)=3\sin x-2\cos x$ $F(x)=\int(3\sin x-2\cos x)dx$ $F(x)=$	2*c*. $f(x)=-4\sin x+7\cos x$ $F(x)=\int(-4\sin x+7\cos x)dx$ $F(x)=$
3*a*. $F(x)=e^x+8^x$ $\frac{dF}{dx}=f(x)=$	3*b*. $f(x)=9e^x-\ln 4 \bullet 4^x$ $F(x)=\int(9e^x-\ln 4 \bullet 4^x)dx$ $F(x)=$	3*c*. $f(x)=-2e^x+3\bullet 5^x$ $F(x)=\int(-2e^x+3\bullet 5^x)dx$ $F(x)=$
4*a*. $F(x)=\ln(x)+\frac{1}{x}+\frac{1}{x^2}$ $\frac{dF}{dx}=f(x)=$	4*b*. $f(x)=\frac{7}{x}-\frac{1}{x^2}+\frac{2}{x^3}$ $F(x)=\int\left(\frac{7}{x}-\frac{1}{x^2}+\frac{2}{x^3}\right)dx$ $F(x)=$	4*c*. $f(x)=\frac{6}{x^4}+\frac{10}{x^3}+\frac{5}{x}$ $F(x)=\int\left(\frac{6}{x^4}+\frac{10}{x^3}+\frac{5}{x}\right)dx$ $F(x)=$
5*a*. $F(x)=\tan(x)+\sec(x)$ $\frac{dF}{dx}=f(x)=$	5*b*. $f(x)=4\sec^2 x-7\sec x\tan x$ $F(x)=\int(4\sec^2 x-7\sec x\tan x)dx$ $F(x)=$	5*c*. $f(x)=-3\sec^2 x+8\sec x\tan x$ $F(x)=\int(-3\sec^2 x+8\sec x\tan x)dx$ $F(x)=$
6*a*. $F(x)=\cot(x)+\csc(x)$ $\frac{dF}{dx}=f(x)=$	5*b*. $f(x)=-5\csc^2 x+2\csc x\cot x$ $F(x)=\int(-5\csc^2 x+2\csc x\cot x)dx$ $F(x)=$	5*c*. $f(x)=2\csc^2 x-9\csc x\cot x$ $F(x)=\int(2\csc^2 x-9\csc x\cot x)dx$ $F(x)=$
7*a*. $F(x)=\sqrt{x}+\sqrt[3]{x}$ $\frac{dF}{dx}=f(x)=$	7*b*. $f(x)=\frac{7}{2\sqrt{x}}-\frac{5}{3\sqrt[3]{x^2}}$ $F(x)=\int\left(\frac{7}{2\sqrt{x}}-\frac{5}{3\sqrt[3]{x^2}}\right)dx$ $F(x)=$	7*c*. $f(x)=\frac{-9}{\sqrt{x}}+\frac{8}{\sqrt[3]{x^2}}$ $F(x)=\int\left(-\frac{9}{\sqrt{x}}+\frac{8}{\sqrt[3]{x^2}}\right)dx$ $F(x)=$
8*a*. $F(x)=\arctan x+\arcsin x$ $\frac{dF}{dx}=f(x)=$	8*b*. $f(x)=\frac{-2}{1+x^2}+\frac{3}{\sqrt{1-x^2}}$ $F(x)=\int\left(\frac{-2}{1+x^2}+\frac{3}{\sqrt{1-x^2}}\right)dx$ $F(x)=$	8*c*. $f(x)=\frac{10}{5+5x^2}-\frac{6}{\sqrt{4-4x^2}}$ $F(x)=\int\left(\frac{10}{5+5x^2}-\frac{6}{\sqrt{4-4x^2}}\right)dx$ $F(x)=$