

MATH 151 POP QUIZ!

(TRY NOT TO LOOK AT YOUR BOOK! DON'T TURN THIS IN.)

DERIVATIVES (CHAPTERS 3, 7, and 8)

$$D_x(\sin x) = \underline{\hspace{2cm}}$$

$$D_x(\cos x) = \underline{\hspace{2cm}}$$

$$D_x(\tan x) = \underline{\hspace{2cm}}$$

$$D_x(\cot x) = \underline{\hspace{2cm}}$$

$$D_x(\sec x) = \underline{\hspace{2cm}}$$

$$D_x(\csc x) = \underline{\hspace{2cm}}$$

Evaluate the following:

$$D_x\left(4x^3 - \sqrt[3]{x} + \frac{1}{x^5} + 7\right)$$

$$D_x(7x^2 + 3)^{10}$$

$$D_x[\sec(4x)]$$

$$D_x[\sin^4(3x)]$$

$$D_x(x^3 \tan x)$$

$$D_x\left(\frac{\sin x}{3x+1}\right)$$

$$D_x(e^x)$$

$$D_x(e^{4x})$$

$$D_x(e^{\sin x})$$

$$D_x(2^x)$$

$$D_x(\ln x)$$

$$D_x[\ln(x^3 + 4x)]$$

$$D_x(\sin^{-1} x)$$

$$D_x(\cos^{-1} x)$$

$$D_x(\tan^{-1} x)$$

$$D_x(\sinh x)$$

$$D_x(\cosh x)$$

Let $f(x) = x^2$. Give a geometric interpretation of $f'(3)$.

INTEGRALS (CHAPTERS 5, 7, and 8)

Evaluate the following:

$$\int \left(5x^2 + \frac{1}{x^4} - \sqrt{x} \right) dx$$

$$\int \frac{x^2}{x^3 + 7} dx$$

$$\int \frac{1}{1+x^2} dx$$

$$\int \sin(6x) dx$$

$$\int \sec^2 x dx$$

$$\int_4^9 \frac{e^{\sqrt{x}}}{\sqrt{x}} dx$$

$$\int e^{5x} dx$$

$$\int 2^x dx$$

$$\int \sin x \, dx = \underline{\hspace{2cm}}$$

$$\int \cos x \, dx = \underline{\hspace{2cm}}$$

$$\int \tan x \, dx = \underline{\hspace{2cm}}$$

$$\int \cot x \, dx = \underline{\hspace{2cm}}$$

$$\int \sec x \, dx = \underline{\hspace{2cm}}$$

$$\int \csc x \, dx = \underline{\hspace{2cm}}$$

Give a geometric interpretation of $\int_{-1}^1 \sqrt{1-x^2} \, dx$.

True or False: If $x > 0$ and $y > 0$, $\sqrt{x+y} = \sqrt{x} + \sqrt{y}$.

True or False: If $x > 0$, $\ln x^3 = 3 \ln x$.

True or False: If $x > 0$, $(\ln x)^3 = 3 \ln x$.

The front endpaper of your textbook has a nice list of key formulas. You should have learned all of these in Math 150, except for #1, #19, and #20 under FORMULAS FOR INTEGRALS.