NAME:_____ **DATE: 09/19/2017**

ASSIGNMENT: Special Derivatives
DIRECTIONS: Back in my day, we had to memorize these. The IB is so giving!

6.1	Derivative of $f(x)$	$y = f(x) \Rightarrow \frac{dy}{dx} = f'(x) = \lim_{h \to 0} \left(\frac{f(x+h) - f(x)}{h} \right)$
6.2	Derivative of x^n	$f(x) = x^n \Rightarrow f'(x) = nx^{n-1}$
	Derivative of $\sin x$	$f(x) = \sin x \Rightarrow f'(x) = \cos x$
	Derivative of $\cos x$	$f(x) = \cos x \Rightarrow f'(x) = -\sin x$
	Derivative of $\tan x$	$f(x) = \tan x \Rightarrow f'(x) = \frac{1}{\cos^2 x}$
	Derivative of e^x	$f(x) = e^x \Rightarrow f'(x) = e^x$
	Derivative of $\ln x$	$f(x) = \ln x \Rightarrow f'(x) = \frac{1}{x}$
	Chain rule	$y = g(u),\ u = f(x) \Rightarrow \frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx}$

Differentiate problems 1-3 with respect to x.

1.) y = sin 5x

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2.) $y = e^{99x}$

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3.) $f(x) = \ln (4x^3 - 2x + 1)$

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4.) Find f'(π) for f(x) = tan 3x

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