Chapter 2 - Calculus Test Review **Name:**

1) Find g"(x): $g(x) = -3\pi \tan x$	2) Differentiate: $f(x) = \frac{6x^3 - x}{\sqrt[3]{x}}$	3) Differentiate: $g(x) = (\cot x)(3x-5)^2$
4) If 6ft ladder is being pushed up the side of a wall at 5 feet per second, at what rate is the bottom of the ladder going toward the wall when it is 2ft from the wall?	5) Find the derivative at the point (-1,0). $y - 3x^2 = y^3 - 3$	6) A point moves along a curve $y = x^2 + 3x$ in such a way that the y value is decreasing at the rate of 4 units per second. At what rate is the x changing when x =1.
7) At what value(s) of x does g(x) have a slope of 11? $g(x) = 2x^3 - x$	8) Differentiate: $h(x) = (x^3 - 2x^2)(7 - 5x)$	9) The position function (in feet) is $s(t) = 3t^2 - t$ a) What is the velocity at 4 seconds? b) What is the acceleration at 5 seconds? c) At what time(s) is the position 0?

10) Use the limit process to find the derivative of f(x). $f(x)=x^2-2x$	11) Differentiate: $f(x)=\dfrac{\cos(5x)}{1-x^2}$	12) Write the equation of the tangent line when $x=5$. $f(x)=\sqrt{26-2x}$
13) Find all value(s) of x where f(x) has a horizontal tangent line. $f(x)=x^3-3x^2$	14) Differentiate: $4x-3xy^2=\cot y$	15) Differentiate: $g(x)=-2\sec^5\left(x-4x^2\right)$