Fall

Math 1210: Quiz #1 ~~Winter~~ **2017**

Name: Solutions	A#:	Section: G

[4] 1. If $f(x) = \dfrac{x^3 + 6x - 5}{x - 1}$ and $g(x) = \sqrt{x^2 - 1}$ then (do not simplify)

$f(g(x)) =$ $\dfrac{(\sqrt{x^2-1})^3 + 6\sqrt{x^2-1} - 5}{\sqrt{x^2-1} - 1}$

$g(f(x)) =$ $\sqrt{\left(\frac{x^3+6x-5}{x-1}\right)^2 - 1}$ or $\left(\left(\frac{x^3+6x-5}{x-1}\right)^2 - 1\right)^{1/2}$

[4] 2. Circle equations of lines. (negative poins for all wrong circles)

$3x + 2y + 7 = 0$	$y = 3x + \cos(x)$	$y = 3x + \cos(y)$	$x = 3\ln(5)$
$9x + (\tan 2)y = 7$	$(y - e^3) = 5(x - \sin 2)$	$y - 4 = e^y(x - 5)$	$xy = 0$

[4] 3. State the slope of the line, the x-intercept, the y-intercept, and the slope of any perpendicular line to the line L given by the equation $7x - 3y - 2 = 0$.

The slope of L is $7/3$

The $x-$ intercept of L is $2/7$

The $y-$ intercept of L is $-2/3$

The slope of any line perpendicular to L is $-3/7$

$-3y = -7x + 2$

$3y = 7x - 2$

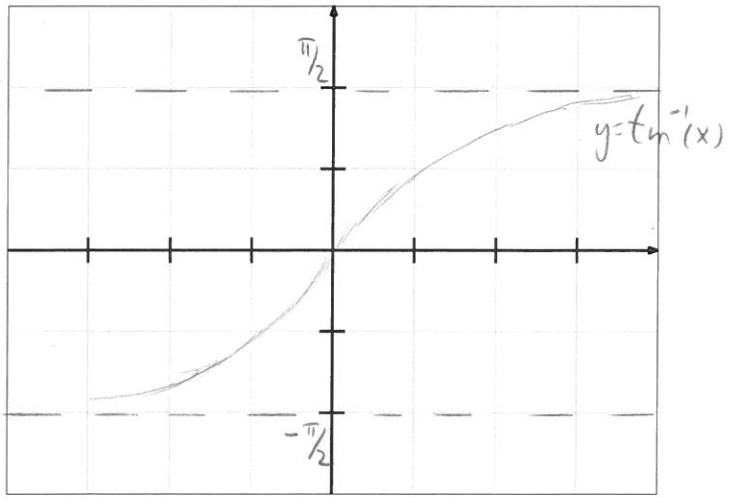
$y = \frac{7}{3}x - \frac{2}{3}$

$0 = \frac{7}{3}x - \frac{2}{3}$

$\frac{7}{3}x = \frac{2}{3}$

$x = \frac{2}{7}$

[2] 4. Sketch the graph of $y = \tan^{-1}(x)$ below.



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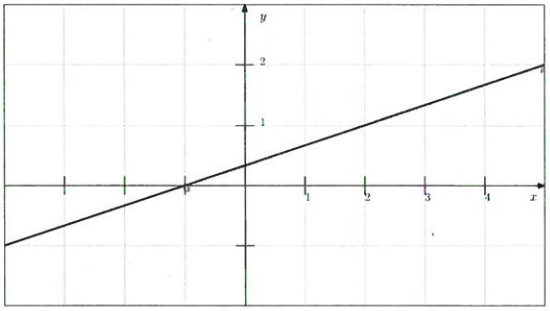
[2] 5. Find the equation of the line L shown on the graph below.



equation of L : $y = \frac{1}{3}x + \frac{1}{3}$

$m = \text{rise}/\text{run} = \frac{1}{3}$

pt $(-1, 0)$

$(y - 0) = \frac{1}{3}(x + 1)$

$y = \frac{1}{3}x + \frac{1}{3}$

[4] 6. Find the equation of the secant line L to the curve $y = 3x^3 - 4x^2 - 5$ ~~above~~ on the interval $[0, 2]$. *(Recall that a secant line to the curve $y = f(x)$ on the interval $[a, b]$ is the line passing through points $(a, f(a)), (b, f(b))$ and usually has no relationship to the $\sec(x)$ function.)*

points on the line are $(0, -5)$

$(2, 24 - 16 - 5) = (2, 3)$

$m = \frac{3 + 5}{2 - 0} = \frac{8}{2} = 4$

eq. of secant line: $y + 5 = 4(x - 0)$

$y = 4x - 5$