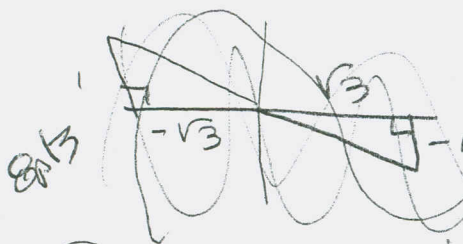


122 Quiz 3 § 1.4-1.7 20 poss

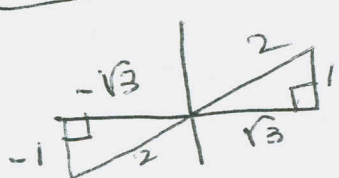
① $\tan \theta = -\frac{1}{\sqrt{3}}$ and $0 \leq \theta < 2\pi \Rightarrow$

①



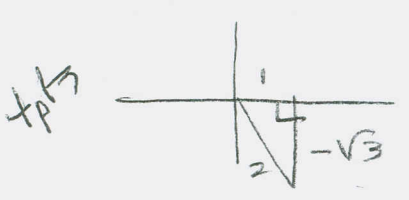
$\theta = \frac{11\pi}{6}, \frac{5\pi}{6}$
 $= 330^\circ, 150^\circ$

NOPE $\tan \theta = +\frac{1}{\sqrt{3}}$



② $\arcsin(-\frac{\sqrt{3}}{2}) = -\frac{\pi}{3}$

$\theta = \frac{\pi}{6}, \frac{7\pi}{6}$
 $30^\circ, 210^\circ$



③ Want $f(x)$ so that it's a cosine, and

Amplitude = $\frac{30 - (-20)}{2} = 25$ $25 \cos x$

Period = 24 hrs

$x=0$ is midnight

$b x = 2\pi$ when $x = 24$

$25 \cos(\frac{\pi}{12} x)$

$b = \frac{2\pi}{24} = \frac{\pi}{12}$

Midline is $y = \frac{30 + (-20)}{2} = 5$ $25 \cos(\frac{\pi}{12} x) + 5$

High point is $x = 18$ (6 pm)

$f(x) = 25 \cos(\frac{\pi}{12}(x-18)) + 5$

(4) $g(x) = 3 \tan\left(\frac{\pi}{10}x - \frac{\pi}{5}\right) - 3 = 3 \tan\left(\frac{\pi}{10}(x-2)\right) - 3$

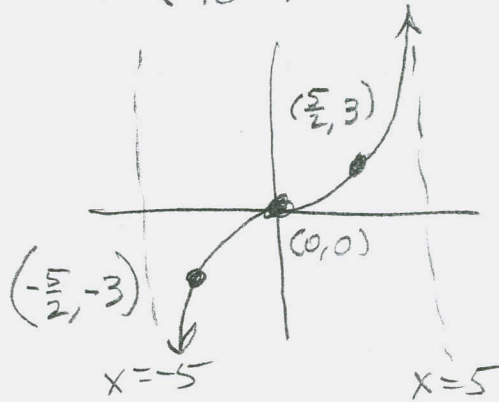
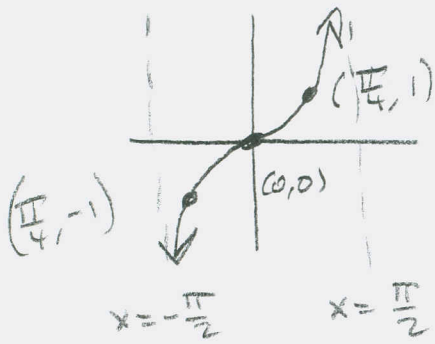
4 pts $\frac{\frac{\pi}{5}}{\frac{\pi}{10}} = \frac{\pi}{5} \cdot \frac{10}{\pi} = 2$

$\frac{\frac{\pi}{2}}{\frac{\pi}{10}} = \frac{\pi}{2} \cdot \frac{10}{\pi} = 5$

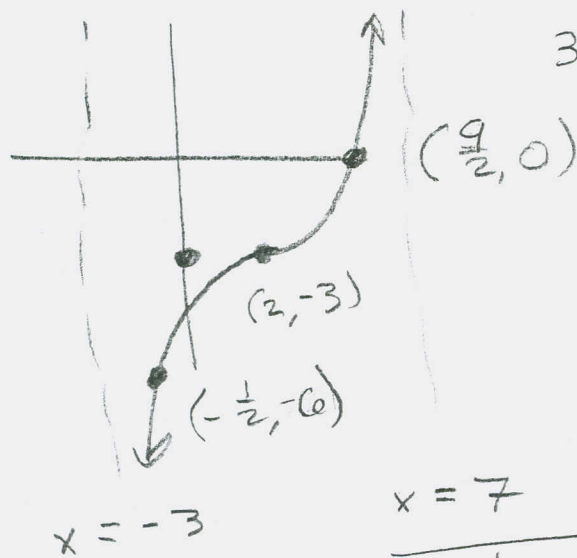
$\frac{\frac{\pi}{4}}{\frac{\pi}{10}} = \frac{\pi}{4} \cdot \frac{10}{\pi} = \frac{5}{2}$

$f(x) = \tan x$

$3f\left(\frac{\pi}{10}x\right)$



Now, Right 2 & down 3



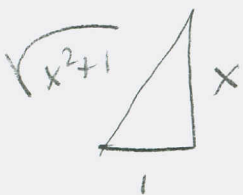
$3 \tan\left(\frac{\pi}{10}(x-2)\right) - 3 = g(x)$

$-\frac{5}{2} + 2 = -\frac{5}{2} + \frac{4}{2} = -\frac{1}{2}$

$\frac{5}{2} + \frac{4}{2} = \frac{9}{2}$

(5) (a) $\cos(\arctan(x))$

$= \frac{1}{\sqrt{x^2+1}}$



2 pts

(b) 2 pts

$\csc(\arccos(x)) = \frac{1}{\sqrt{1-x^2}}$

