Test 1

#2 $r = 25$ cm

(a) $\theta = 1332^\circ$

$s = r\theta = (25)(1332^\circ)\left(\frac{\pi}{180^\circ}\right) =$

37
111
333
666

$37.5\pi = 185\pi$ cm

$\approx$ 581.195 cm

=

GLAUCOMA

(b) $A = \frac{1}{2}r^2\theta = \frac{1}{2}(25)^2(135^\circ)\left(\frac{\pi}{180^\circ}\right)$

15
45
125

$\frac{(625)(135)\pi}{2(180)}$

36
12
4

$= \frac{1875\pi}{8}$ cm^2 Yes

(736.3107782 cm^2) Not units

$\sec^4\left(\frac{\pi x}{32}\right) - 4 = 0$

$\sec^4\left(\frac{\pi x}{32}\right) = 4$

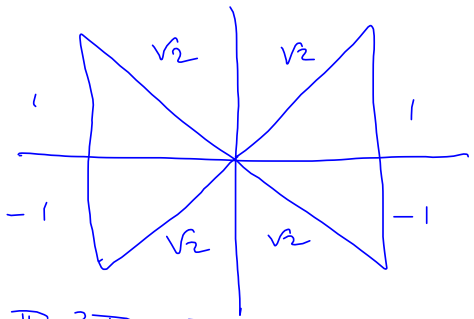
$\sqrt[4]{A^4} = |A|$

$\sqrt[4]{\sec^4\left(\frac{\pi x}{32}\right)} = \sqrt[4]{4} = 4^{\frac{1}{4}} = \left(2^2\right)^{\frac{1}{4}} = 2^{\frac{2}{4}} = 2^{\frac{1}{2}} = \sqrt{2}$

$\left|\sec\left(\frac{\pi x}{32}\right)\right| = \sqrt{2}$

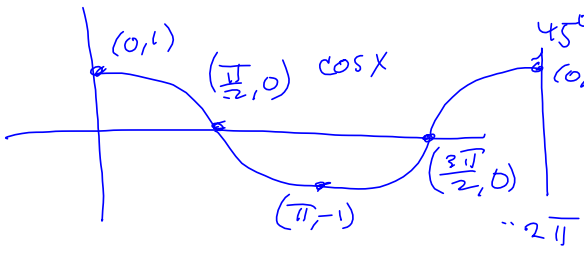
$\sec\left(\frac{\pi x}{32}\right) = \pm\sqrt{2}$

$\cos\left(\frac{\pi x}{32}\right) = \pm\frac{1}{\sqrt{2}}$



want $\cos\left(\frac{\pi x}{32}\right) = \pm\frac{1}{\sqrt{2}}$ $\frac{\pi x}{32} = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

$45^\circ, 135^\circ, 225^\circ, 315^\circ$



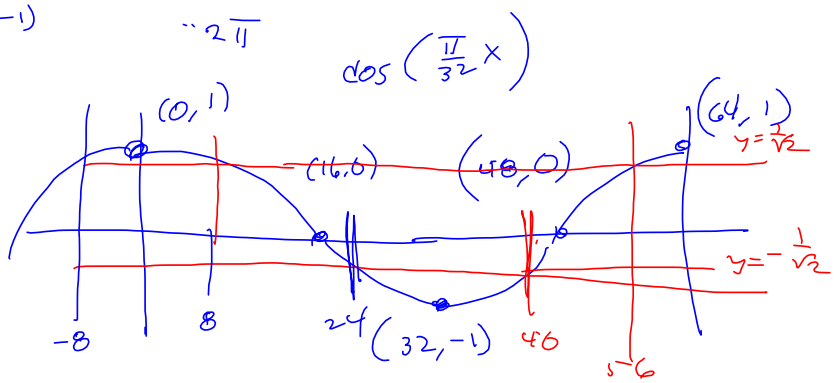
$\cos\left(\frac{\pi}{32}x\right)$

$x \longmapsto \frac{32}{\pi}x$

$\frac{\pi}{2}\cdot\frac{32}{\pi} = 16$

$\pi\cdot\frac{32}{\pi} = 32$

$\cos\left(\frac{\pi}{32}x\right)$



$\frac{\pi}{32}x = \frac{\pi}{4} \Rightarrow x = 8$

$\frac{\pi}{32}x = \frac{3\pi}{4} \Rightarrow x = 24$

$\frac{\pi}{32}x = \frac{5\pi}{4} \Rightarrow x = 40$

$\frac{\pi}{32}x = \frac{7\pi}{4} \Rightarrow x = 56$

$\{8 + 16n \mid n \in \mathbb{Z}\}$ captures all of the solutions

62, 78, 16, 86, 59, 64, 35, 42,
61, 59, 5, 92

There will be a Test 1 Re-Take opportunity towards the end of the semester.

I wouldn't mess with it, unless I still really needed it at the end. We drop the worst test from your grade, fwiw.

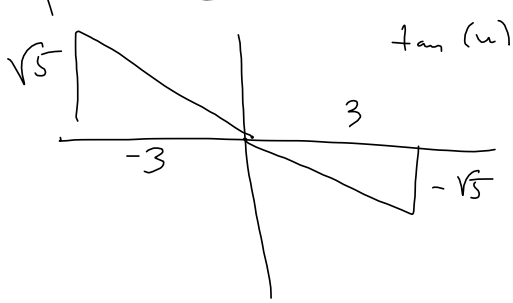
No, David. Don't re-take it.

Just don't.

Please, no.

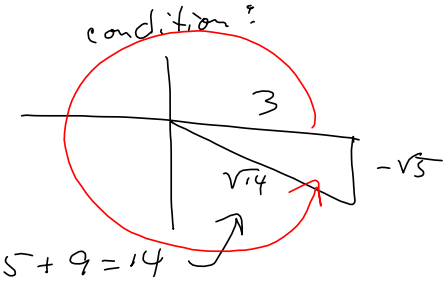
3. (10 pts) Find $\sin\left(\frac{u}{2}\right)$, $\cos\left(\frac{u}{2}\right)$, and $\tan\left(\frac{u}{2}\right)$, given that $\tan(u)=-\frac{\sqrt{5}}{3}$ and $\cos(u)>0$.

Assume $0<u<2\pi$. Give final answers in simplified radical form.



$\tan(u)=-\frac{\sqrt{5}}{3}$

Add $\cos(u)>0$ condition:



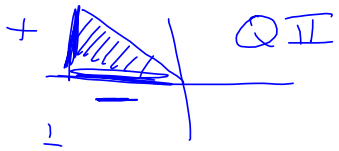
$5+9=14$

$\sin\left(\frac{u}{2}\right)=\pm\sqrt{\frac{1-\cos(u)}{2}}$

$=\pm\sqrt{\frac{1-\frac{3}{\sqrt{14}}}{2}}$

$270^\circ<u<360^\circ$

$135^\circ<\frac{u}{2}<180^\circ$



$\frac{1-\frac{3}{\sqrt{14}}}{2}=\frac{\frac{14}{14}-\frac{3\cdot\sqrt{14}}{14}}{\frac{2}{1}}=\frac{14-3\sqrt{14}}{14}\cdot\frac{1}{2}$

STOP! PAIN!

$\sqrt{\frac{14-3\sqrt{14}}{28}}=\frac{\sqrt{14-3\sqrt{14}}}{\sqrt{28}}=\frac{\sqrt{14-3\sqrt{14}}}{2\sqrt{7}}$

$\frac{14-3\sqrt{14}}{28}$

$=\frac{\sqrt{(14-3\sqrt{14})(7)}}{2\sqrt{7\cdot7}}=\frac{\sqrt{98-21\sqrt{14}}}{14}$