

#21 - 33

21. $\sin \frac{2\pi}{3} = \frac{\sqrt{3}}{2}$ $\cos \frac{2\pi}{3} = -\frac{1}{2}$ $\tan \frac{2\pi}{3} = -\sqrt{3}$

22. $\sin \frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$ $\cos \frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$ $\tan \frac{5\pi}{4} = 1$

23. $\sin \frac{-7\pi}{3} = -\frac{\sqrt{3}}{2}$ $\cos \frac{-7\pi}{3} = \frac{1}{2}$ $\tan \frac{-7\pi}{3} = -\sqrt{3}$

24. $\sin 3\pi = 0$ $\cos 3\pi = -1$ $\tan 3\pi = 0$

25. $\sin \frac{11\pi}{6} = -\frac{1}{2}$ $\cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2}$ $\tan \frac{2\pi}{3} = -\sqrt{3}$

26. $\sin \frac{-10\pi}{3} = \frac{\sqrt{3}}{2}$ $\cos \frac{-10\pi}{3} = \frac{1}{2}$ $\tan \frac{-10\pi}{3} = \sqrt{3}$

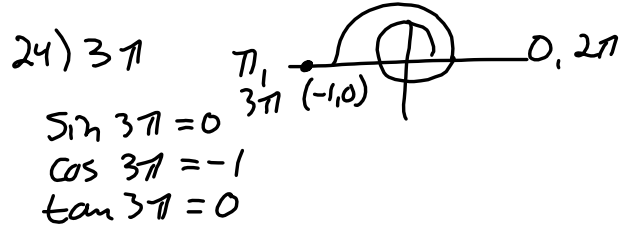
27. $\sin \frac{-25\pi}{4} = -\frac{\sqrt{2}}{2}$ $\cos \frac{-25\pi}{4} = \frac{\sqrt{2}}{2}$ $\tan \frac{-25\pi}{4} = -1$

28. $-\frac{\sqrt{3}}{2}$ 29. $-\frac{\sqrt{3}}{2}$ 30. $-\frac{\sqrt{2}}{2}$ 31. $\frac{1}{2}$

32. $\frac{-\sqrt{6} + \sqrt{2}}{4}$ 33. $\frac{\sqrt{6} - \sqrt{2}}{4}$

Thursday Quiz No Calc

Friday GHW#10 Due



Dec 4-2:11 PM

Ditto 6.1 #21 - 33

21. $\sin \frac{2\pi}{3} = \frac{\sqrt{3}}{2}$ $\cos \frac{2\pi}{3} = -\frac{1}{2}$ $\tan \frac{2\pi}{3} = -\sqrt{3}$

22. $\sin \frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$ $\cos \frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$ $\tan \frac{5\pi}{4} = 1$

23. $\sin \frac{-7\pi}{3} = -\frac{\sqrt{3}}{2}$ $\cos \frac{-7\pi}{3} = \frac{1}{2}$ $\tan \frac{-7\pi}{3} = -\sqrt{3}$

24. $\sin 3\pi = 0$ $\cos 3\pi = -1$ $\tan 3\pi = 0$

25. $\sin \frac{11\pi}{6} = -\frac{1}{2}$ $\cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2}$ $\tan \frac{2\pi}{3} = -\sqrt{3}$

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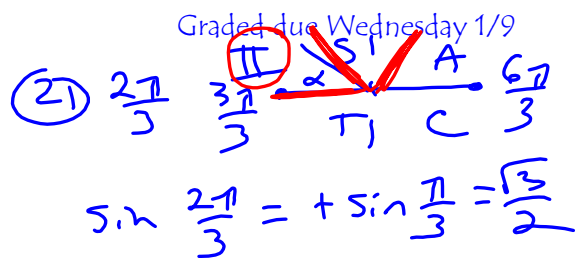
27. $\sin \frac{-25\pi}{4} = -\frac{\sqrt{2}}{2}$ $\cos \frac{-25\pi}{4} = \frac{\sqrt{2}}{2}$ $\tan \frac{-25\pi}{4} = -1$

28. $-\frac{\sqrt{3}}{2}$ 29. $-\frac{\sqrt{3}}{2}$ 30. $-\frac{\sqrt{2}}{2}$ 31. $\frac{1}{2}$

32. $\frac{-\sqrt{6} + \sqrt{2}}{4}$ 33. $\frac{\sqrt{6} - \sqrt{2}}{4}$

Quiz Monday (No Calculator)

Graded due Wednesday 1/9



	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$
sin	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$
cos	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$
tan	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$

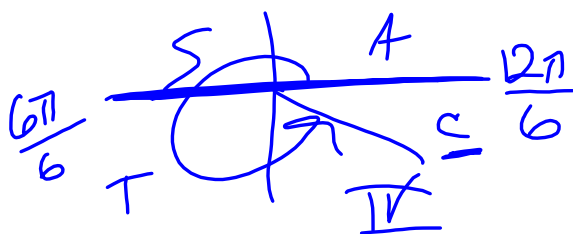
$$\cos \frac{2\pi}{3} = -\cos \frac{\pi}{3} = -\frac{1}{2}$$

$$\tan \frac{2\pi}{3} = -\tan \frac{\pi}{3} = -\sqrt{3}$$

Dec 4-2:11 PM

$$\begin{aligned}
 28) & \sin \frac{\pi}{3} \cos \pi + \sin \pi \cos \frac{\pi}{3} \\
 &= \left(\frac{\sqrt{3}}{2} \right) (-1) + \frac{(0)(\frac{1}{2})}{0} \\
 &= -\frac{\sqrt{3}}{2}
 \end{aligned}$$

$$\begin{aligned}
 25) \quad \sin \frac{11\pi}{6} &= -\sin \frac{\pi}{6} = -\frac{1}{2} \\
 \cos \frac{11\pi}{6} &= +\cos \frac{\pi}{6} = \frac{\sqrt{3}}{2} \\
 \tan \frac{11\pi}{6} &= -\tan \frac{\pi}{6} = -\frac{1}{\sqrt{3}}
 \end{aligned}$$



32)
$$\sin\left(\frac{3\pi}{4}\right)\cos\left(\frac{5\pi}{6}\right) - \cos\left(\frac{3\pi}{4}\right)\sin\left(\frac{5\pi}{6}\right)$$

$$= \left(\frac{+\sqrt{2}}{2}\right)\left(\frac{-\sqrt{3}}{2}\right) - \left(\frac{-\sqrt{2}}{2}\right)\left(\frac{1}{2}\right)$$

$$= -\frac{\sqrt{6}}{4} + \left(\frac{+\sqrt{2}}{4}\right)$$

$$= \frac{-\sqrt{6} + \sqrt{2}}{4}$$

Unit circle reference: $\frac{4\pi}{4}$ to $\frac{8\pi}{4}$ with $\frac{6\pi}{4}$ and $\frac{12\pi}{4}$ marked.

Jan 4-9:20 AM

33)
$$\sin\left(-\frac{7\pi}{3}\right)\cos\left(\frac{5\pi}{4}\right) + \cos\left(-\frac{7\pi}{3}\right)\sin\left(\frac{5\pi}{4}\right)$$

$$= (-\sin\frac{\pi}{3})(-\cos\frac{\pi}{4}) + (+\cos\frac{\pi}{3})(-\sin\frac{\pi}{4})$$

$$= \left(-\frac{\sqrt{3}}{2}\right)\left(-\frac{\sqrt{2}}{2}\right) + \left(\frac{1}{2}\right)\left(-\frac{\sqrt{2}}{2}\right)$$

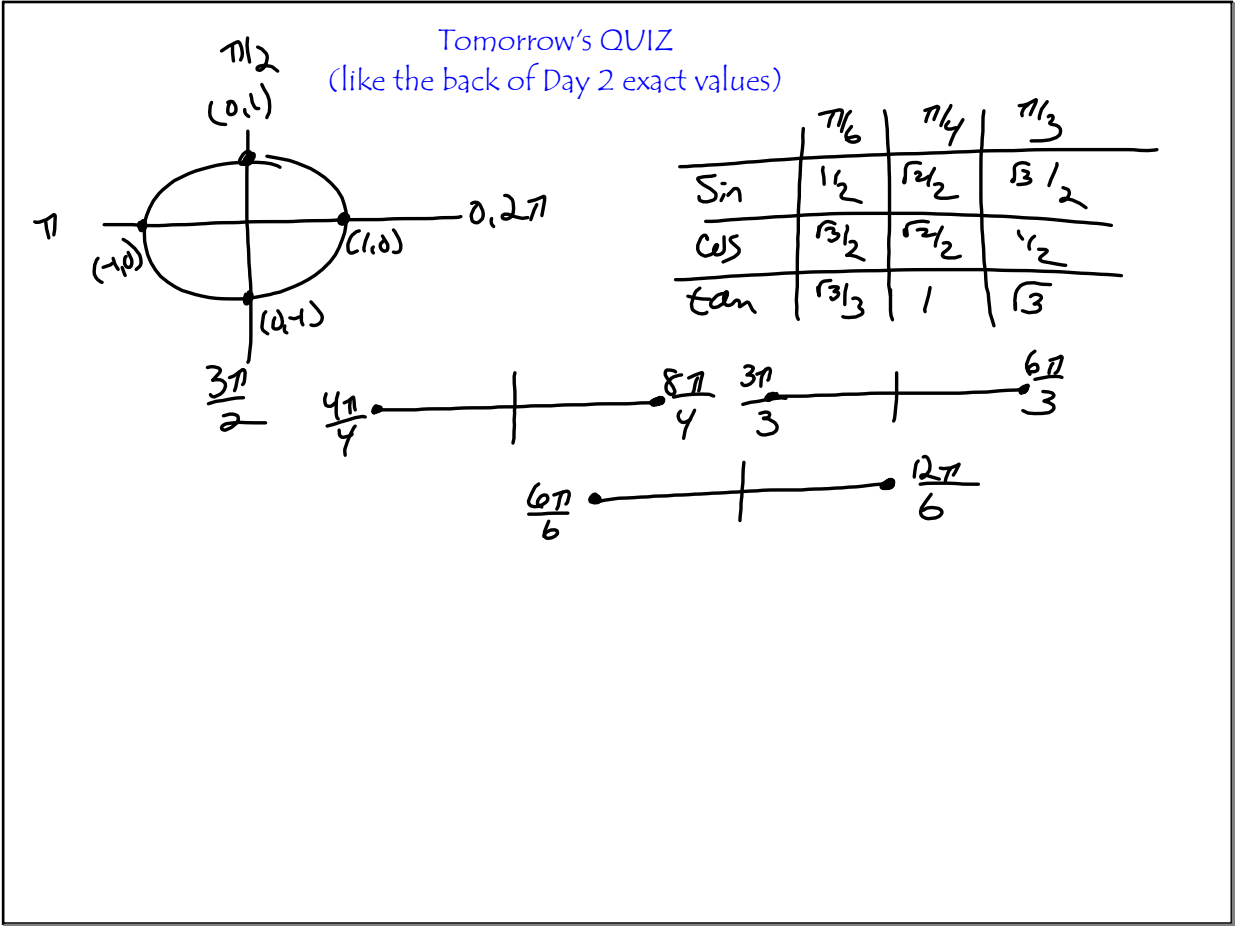
$$= +\frac{\sqrt{6}}{4} + -\frac{\sqrt{2}}{4}$$

$$= \frac{+\sqrt{6}}{4} - \frac{\sqrt{2}}{4}$$

$$= \frac{\sqrt{6} - \sqrt{2}}{4}$$

Unit circle reference: $-\frac{3\pi}{3}$ to $-\frac{6\pi}{3}$ with $\frac{4\pi}{4}$ and $\frac{8\pi}{4}$ marked.

Jan 4-9:23 AM



Jan 4-9:00 AM



Dec 3-8:24 AM

Reciprocal Functions:

$$\csc \theta = \frac{1}{\sin \theta}$$

also:

$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

$$\sec \theta = \frac{1}{\cos \theta}$$

so...

$$\cot \theta = \frac{\cos \theta}{\sin \theta}$$

$$\cot \theta = \frac{1}{\tan \theta}$$

Nov 29-9:08 PM

Steps:

Factor if possible
Replace with sin or cos
Cancel like terms

$$1. \quad \cot x \sec x = \frac{\cancel{\cos x}}{\sin x} \cdot \frac{1}{\cancel{\cos x}} \\ = \frac{1}{\sin x} = \csc x$$

$$2. \quad \frac{\cos^2 t \sin t}{\sin^2 t \cos t} = \frac{\overset{\text{cost}}{\cancel{(\cos t)^2}} \overset{\text{cost}}{\cancel{\sin t}}}{\underset{\text{sint}}{\cancel{(\sin t)^2}} \cancel{\cos t}} \\ = \frac{\cos t}{\sin t} = \cot(t)$$

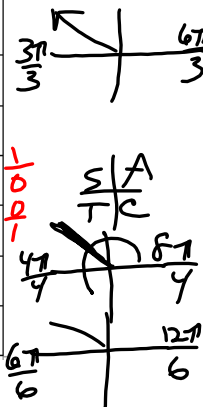
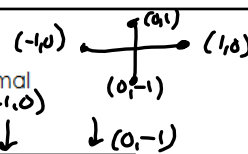
$$(3) \quad \sec x \sin x = \frac{1}{\cos x} \cdot \frac{\sin x}{1} \\ = \frac{\sin x}{\cos x} = \tan x$$

$$4. \quad \tan \theta (\csc \theta) \\ = \frac{\cancel{\sin \theta}}{\cos \theta} \cdot \frac{1}{\cancel{\sin \theta}} = \frac{1}{\cos \theta} = \sec \theta$$

Dec 3-8:26 AM

5. Fill in the missing entries in the following table. Give exact answers, not decimal approximations.

t	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	π	$\frac{3\pi}{2}$
sin t	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	$+\frac{\sqrt{3}}{2}$	$+\frac{\sqrt{2}}{2}$	$+\frac{1}{2}$	0	-1
cos t	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	$-\frac{1}{2}$	$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{3}}{2}$	-1	0
tan t	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	und	$-\sqrt{3}$	-1	$-\frac{\sqrt{3}}{3}$	0	und
cot t	und	$\frac{2\sqrt{3}}{3}$	1	$\frac{1}{\sqrt{3}}$	0	$-\frac{\sqrt{3}}{3}$	-1	$-\sqrt{3}$	und	0
sec t	1	$\frac{2}{\sqrt{3}}$	$\frac{2\sqrt{2}}{2}$	2	und	-2	$-\sqrt{2}$	$-\frac{2\sqrt{3}}{3}$	-1	und
csc t	und	2	$\sqrt{2}$	$\frac{2\sqrt{3}}{3}$	1	$\frac{2\sqrt{3}}{3}$	$\sqrt{2}$	2	und	-1



Dec 3-8:27 AM

6. Find the value of the remaining trig functions if $\cos t = -\frac{4}{5}$ and $\sin > 0$

$$\sin t = \frac{3}{5}$$

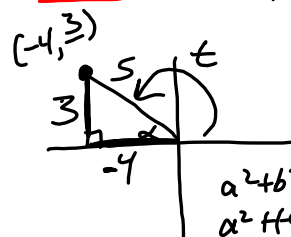
$$\csc t = \frac{5}{3}$$

$$\cos t = -\frac{4}{5}$$

$$\sec t = -\frac{5}{4}$$

$$\tan t = -\frac{3}{4}$$

$$\cot t = -\frac{4}{3}$$



$$3-4-5$$

$$\begin{aligned} a^2 + b^2 &= c^2 \\ a^2 + 4^2 &= 5^2 \\ a^2 &= 25 - 16 \\ a^2 &= 9 \\ a &= \pm 3 \end{aligned}$$

Dec 3-8:27 AM

7. Find the value of the remaining trig functions if $\sin t = -\frac{1}{4}$ and $\tan < 0$

$$\sin t = -\frac{1}{4}$$

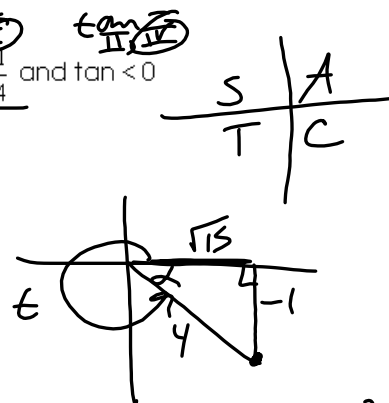
$$\csc t = -4$$

$$\cos t = \frac{\sqrt{15}}{4}$$

$$\sec t = \frac{4}{\sqrt{15}} = \frac{4\sqrt{15}}{15}$$

$$\tan t = \frac{-1}{\sqrt{15}} \cdot \frac{\sqrt{15}}{\sqrt{15}} = -\frac{\sqrt{15}}{15}$$

$$\cot t = -\sqrt{15}$$



$$\begin{aligned} a^2 + (-1)^2 &= 4^2 \\ a^2 &= 16 - 1 \\ a^2 &= 15 \\ a &= \pm\sqrt{15} \end{aligned}$$

Dec 3-8:27 AM

8. Find the value for all six trig functions for $\theta = -\frac{2\pi}{3}$

$$\sin \theta = -\frac{\sqrt{3}}{2}$$

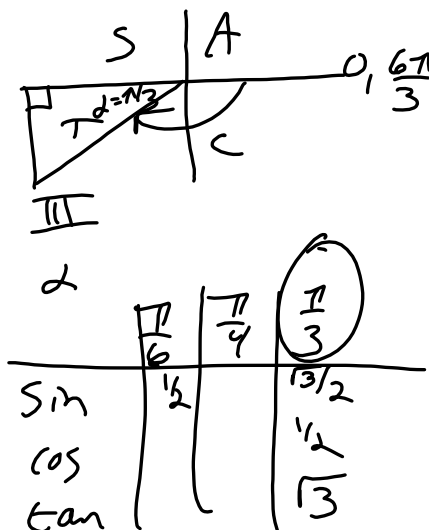
$$\csc \theta = \frac{-2}{\sqrt{3}} = -\frac{2\sqrt{3}}{3}$$

$$\cos \theta = -\frac{1}{2}$$

$$\sec \theta = -2$$

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

$$\cot \theta = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$



Dec 3-8:27 AM

9. Evaluate all six trigonometric functions at t , $(3, -4)$, a point on the terminal side of an angle of t radians in standard position.

$$\sin t = -\frac{4}{5}$$

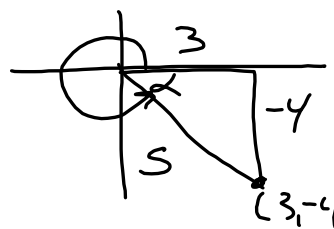
$$\csc t = -\frac{5}{4}$$

$$\cos t = \frac{3}{5}$$

$$\sec t = \frac{5}{3}$$

$$\tan t = -\frac{4}{3}$$

$$\cot t = -\frac{3}{4}$$



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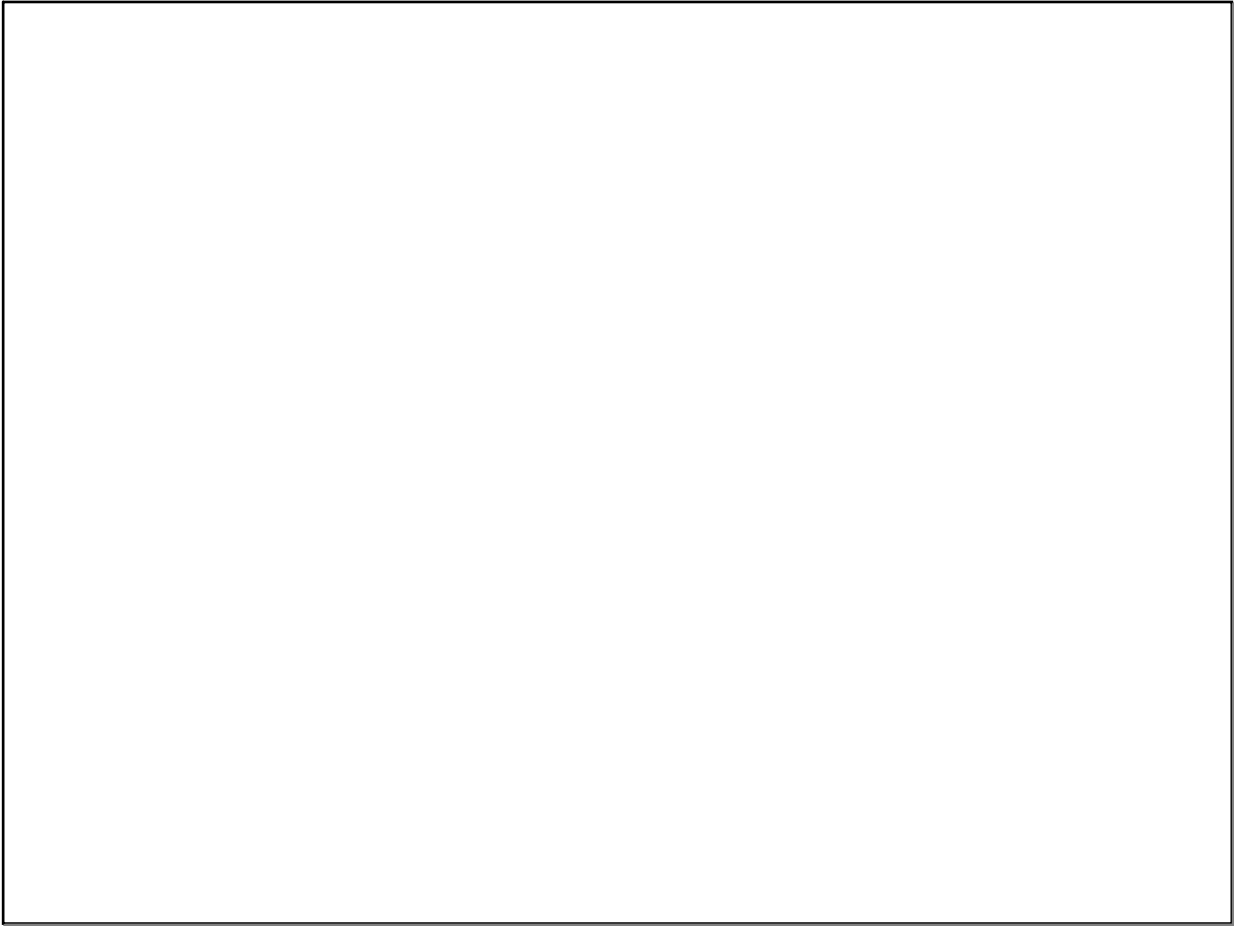
Homework:

Ditto 6.1: 34, 35, 38, 39, 40, 41, 44

Quiz Thursday & Monday
(No Calculator)

Graded due Friday 1/10

Dec 4-2:12 PM



Jan 2-7:41 PM