

Welcome Back!

Day 7: Review of Chapter so far...

For questions 1 and 2:

a) Sketch the following angles.

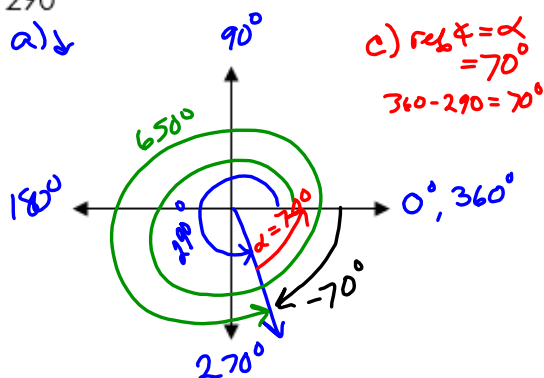
b) Find one positive and one negative co-terminal angle. $\pm 360^\circ$

c) Find and label the reference angle.

$$b) \begin{aligned} 290^\circ + 360^\circ &= 650^\circ \\ 290^\circ - 360^\circ &= -70^\circ \end{aligned}$$

1. 290°

a) ↓



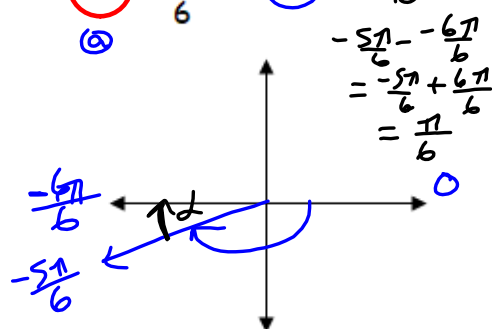
$$c) \text{ref } \angle = \alpha = 70^\circ$$

$$360 - 290 = 70^\circ$$

Wait: Do #3, then return.

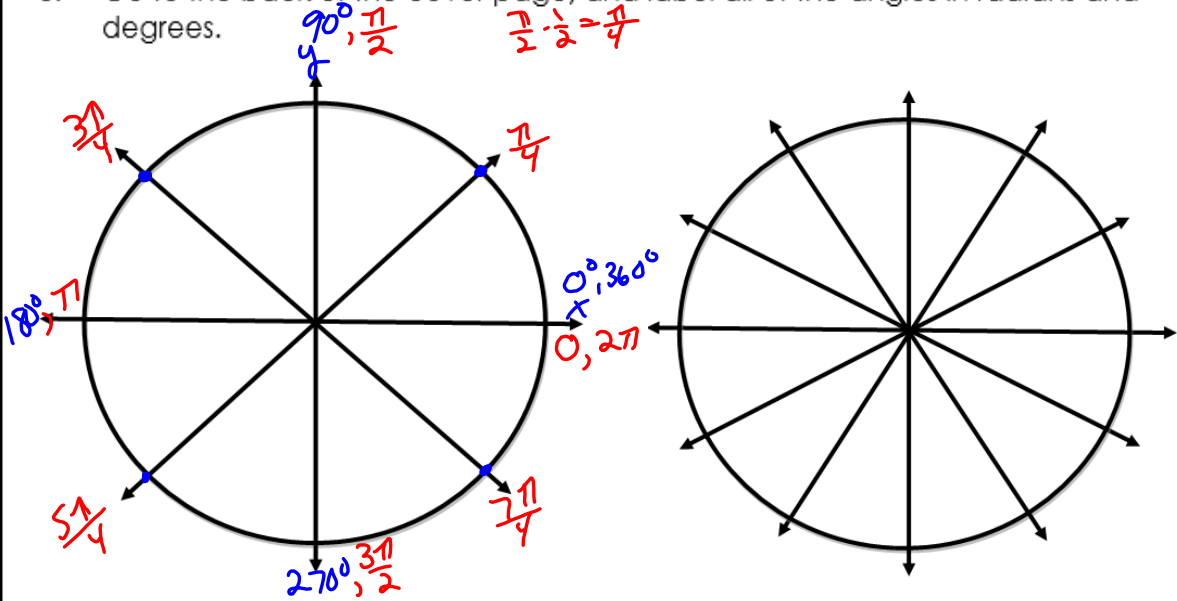
$$2. -\frac{5\pi}{6}$$

$$c) \alpha = \frac{\pi}{6}$$

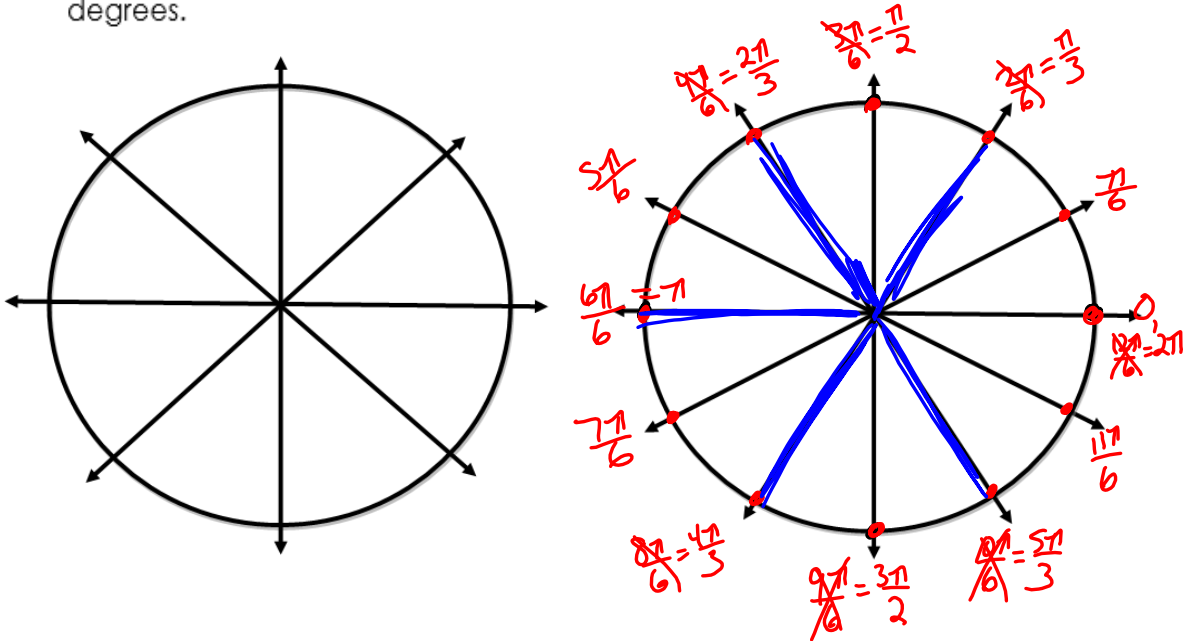


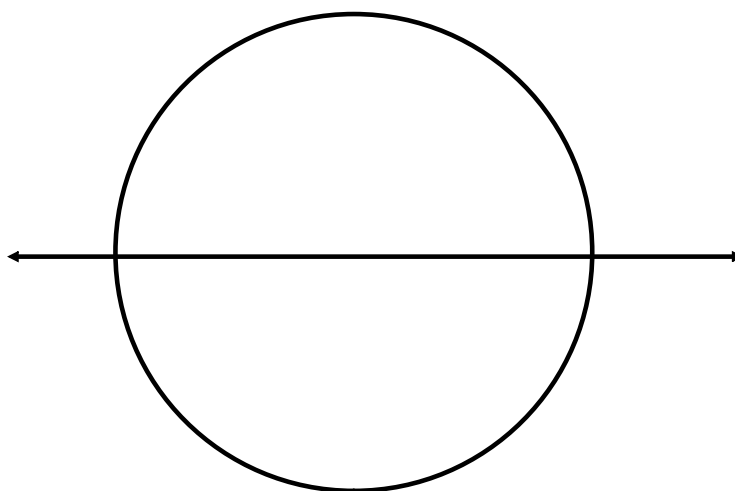
$$\begin{aligned} -\frac{5\pi}{6} - \frac{6\pi}{6} &= -\frac{11\pi}{6} \\ -\frac{11\pi}{6} + \frac{6\pi}{6} &= -\frac{5\pi}{6} \end{aligned}$$

3. Go to the back of the cover page, and label all of the angles in radians and degrees.



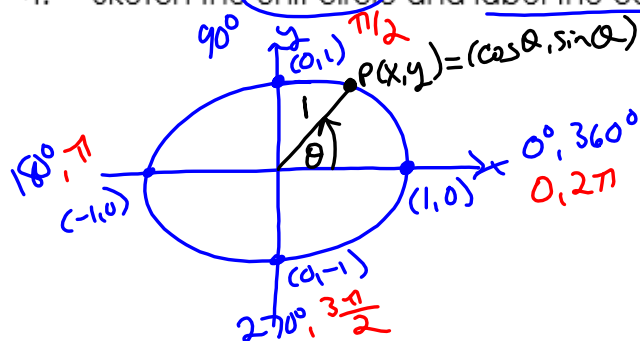
3. Go to the back of the cover page, and label all of the angles in radians and degrees.





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4. Sketch the unit circle and label the coordinates of the quadrants.



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

5. Find: $\sin(90^\circ) = \underline{1}$ $\cos(270^\circ) = \underline{0}$ $\tan(90^\circ) = \frac{\sin 90^\circ}{\cos 90^\circ} = \frac{1}{0} = \text{undefined}$
- $(0,1)$ $(0,-1)$ $(0,1)$
- $(\cos 90^\circ, \sin 90^\circ)$

6. Given $\tan \theta = \frac{7}{24}$ and θ terminates in Quadrant III, determine the value of $\cos(\theta)$.

$S^2 + C^2 = T^2$

$\tan \theta = \frac{7}{24} = \frac{O}{A}$

$\frac{S}{C} = \frac{7}{24}$

$\cos \theta = \frac{A}{H} = \frac{-24}{25}$

$a^2 + b^2 = c^2$
 $(-7)^2 + (-24)^2 = c^2$
 $49 + 576 = c^2$
 $\sqrt{625} = c$
 $c = 25$

Pyth Triple
 7, 24, 25
 * 3, 4, 5
 5, 12, 13
 8, 15, 17

Add
 $m\angle \theta = \tan^{-1}\left(\frac{7}{24}\right)$
 $= 16.26^\circ$
 $\theta = 180 + 16.26$
 $= 196.26$
 $\approx 196.3^\circ$

Diagram

7. Given $\cos \theta = \frac{7}{25}$ where θ is an angle in standard position terminating in quadrant IV, and $\sin^2 \theta + \cos^2 \theta = 1$, what is the value of $\tan(\theta)$? $\frac{\sin \theta}{\cos \theta}$

Solve this question two different ways.

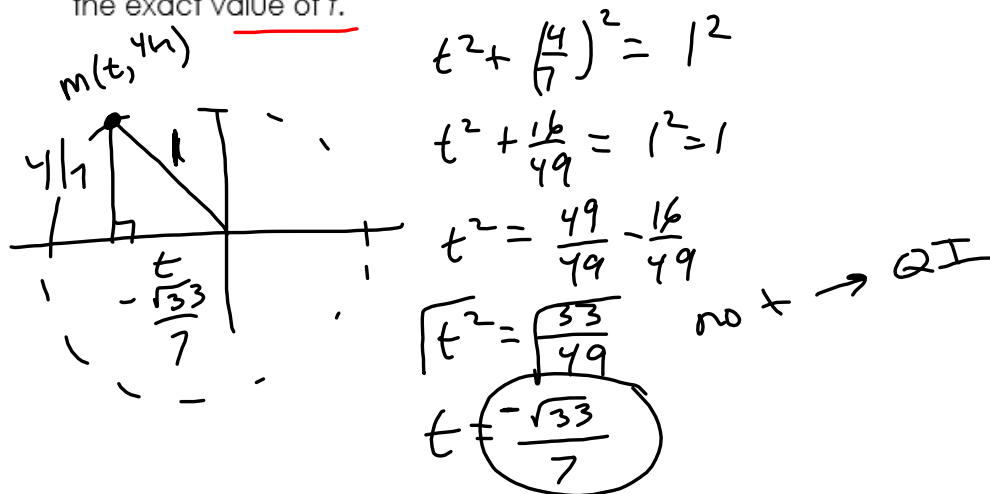
Method 1
 $\cos \theta = \frac{7}{25}$
 $\frac{A}{H} = \frac{7}{25}$
 $\frac{S}{C} = \frac{24}{7}$
 $\tan \theta = \frac{-24}{7}$

Method 2
 $\sin^2 \theta + \cos^2 \theta = 1$
 $\sin^2 \theta + \left(\frac{7}{25}\right)^2 = 1$
 $\sin^2 \theta = 1 - \frac{49}{625} = \frac{625 - 49}{625} = \frac{576}{625}$
 $\sin \theta = \pm \frac{24}{25}$
 $\sin \theta = -\frac{24}{25}$
 $\tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{-\frac{24}{25}}{\frac{7}{25}} = -\frac{24}{7}$

Add
 $m\angle \theta = \cos^{-1}\left(\frac{7}{25}\right)$
 $= 73.73^\circ$
 $\theta = 360^\circ - 73.73$
 $= 286.27$
 $\approx 286.3^\circ$

Diagram

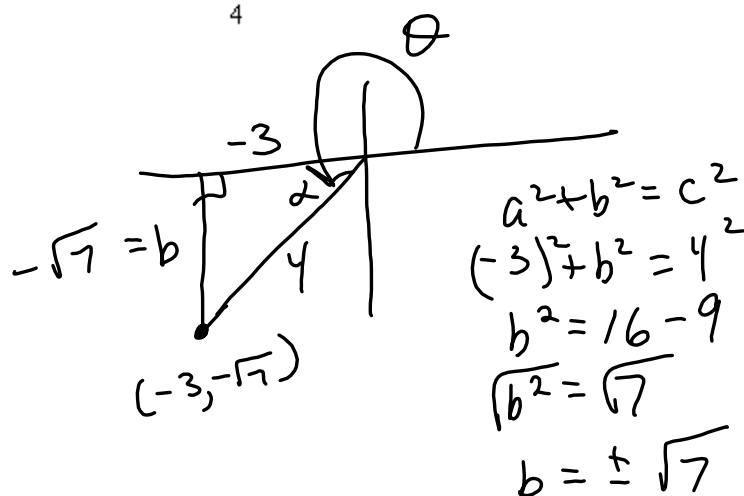
8. Point $M\left(t, \frac{4}{7}\right)$ is located in the second quadrant on the unit circle. Determine the exact value of t .



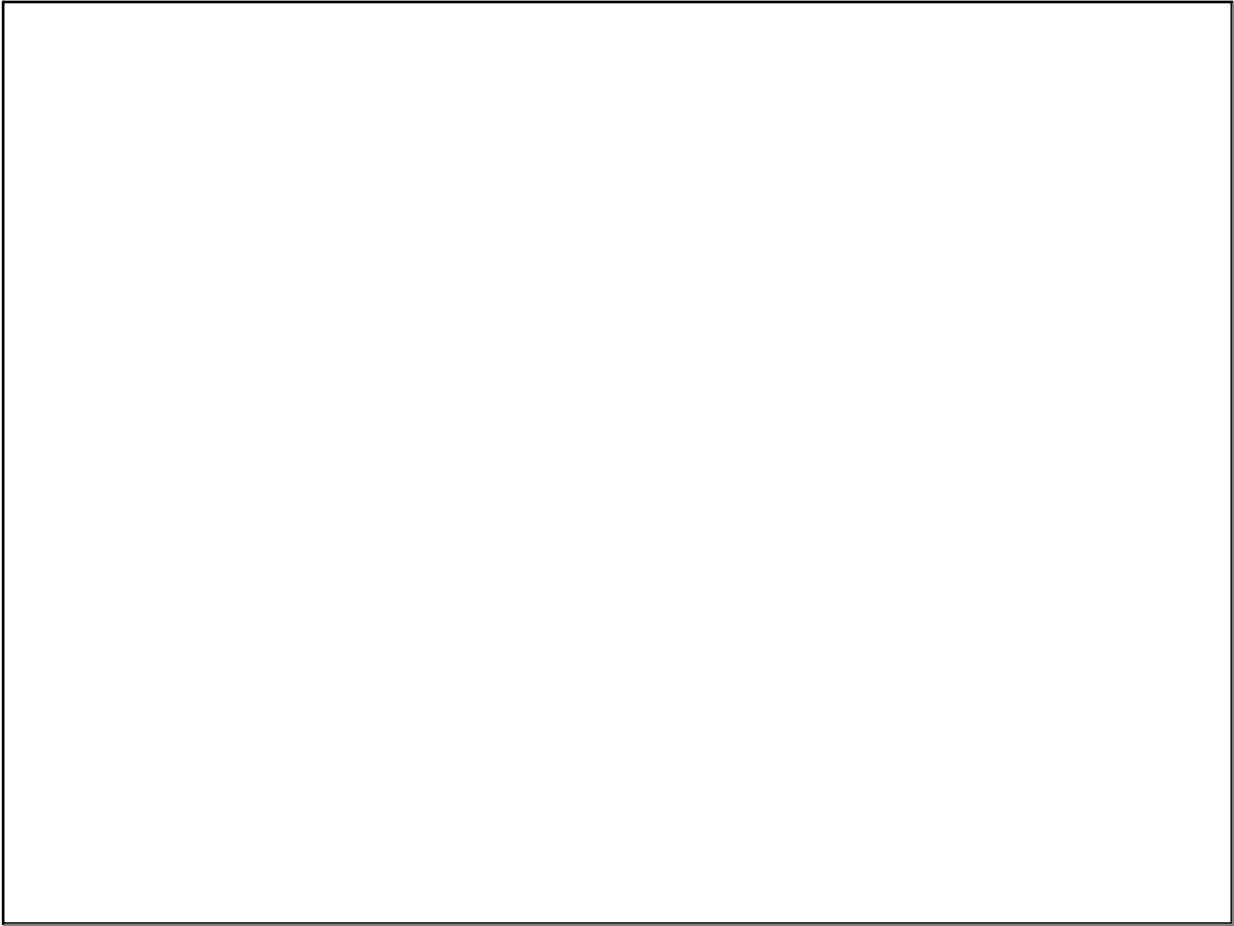
9. If $\cos \theta = -\frac{3}{4}$ and θ is in Quadrant III, then $\sin(\theta)$ is equivalent to:

- 1) $-\frac{\sqrt{7}}{4}$
- 2) $\frac{\sqrt{7}}{4}$

- 3) $-\frac{5}{4}$
- 4) $\frac{5}{4}$



$$\sin \theta = -\frac{\sqrt{7}}{4}$$



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