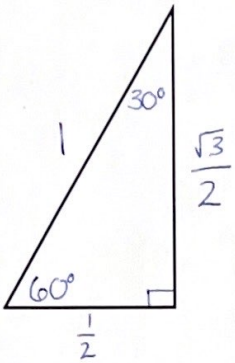
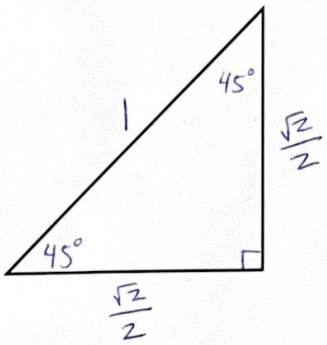
A66: FINAL DRAFT

Name: Arroyo P.6 4/27/22

Special Triangles



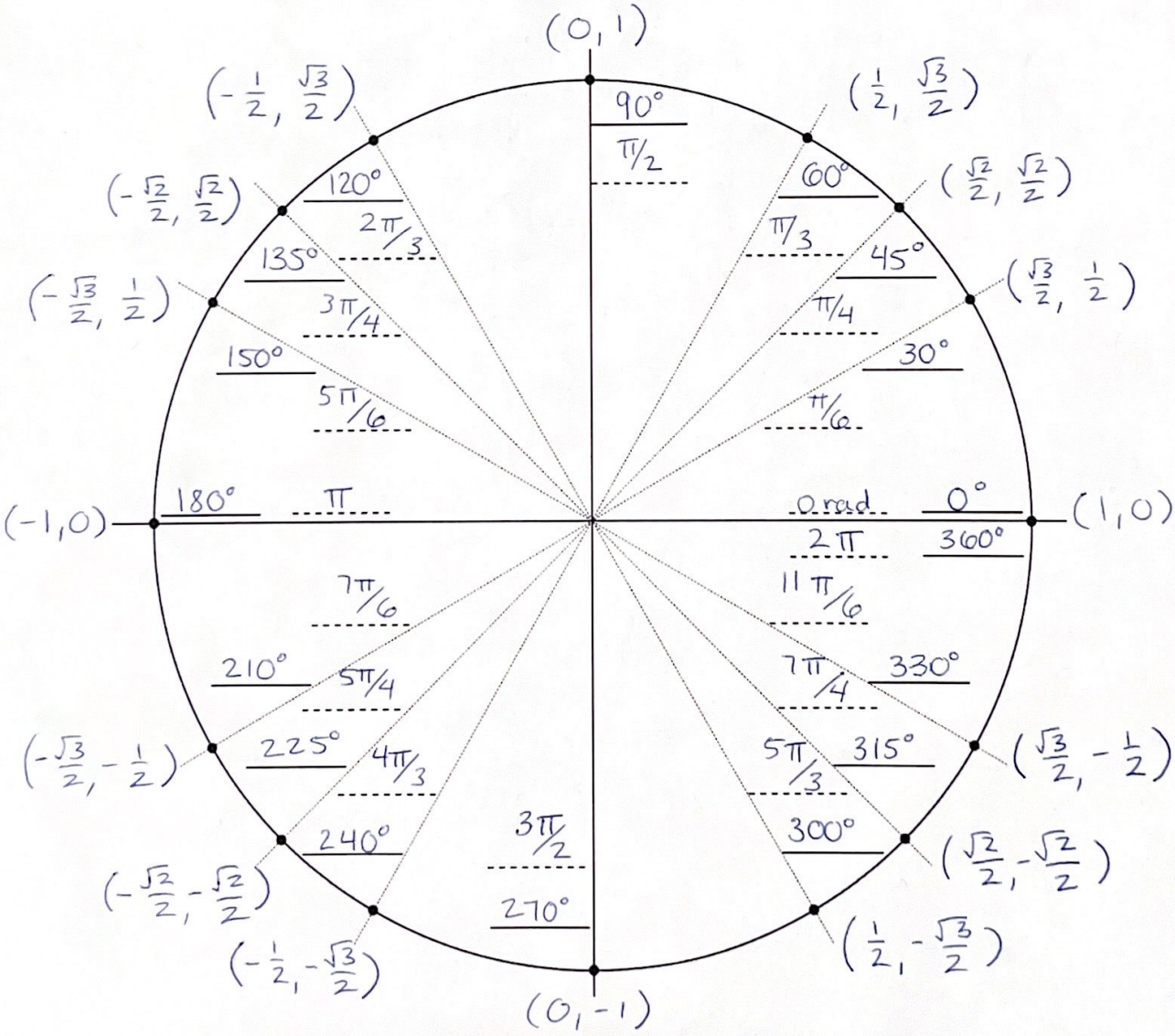


The Unit Circle

$\sin\theta =$ y

$\cos\theta =$ x

$\tan\theta =$ y/x



Arroyo P.6 4/27/22

A67: Unit Circle (Round 3)

Notes: 32.2 (continued) More on the Unit Circle

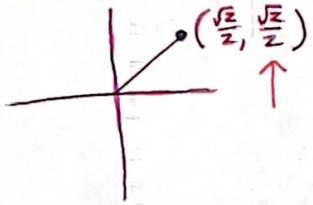
The Unit Circle

Use A66: Final Draft of the Unit Circle to complete the following.

1. $\sin(-315°)$

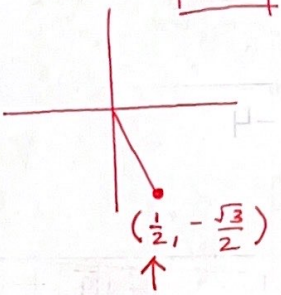
$= \sin(45°)$

$-315° + 360° = 45°$



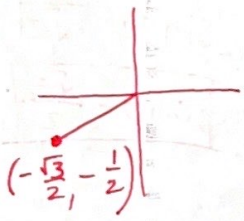
$= \frac{\sqrt{2}}{2}$

2. $\cos\left(\frac{5\pi}{3}\right) = \frac{1}{2}$



3. $\tan 210°$

$= \frac{-1/2}{-\sqrt{3}/2}$



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

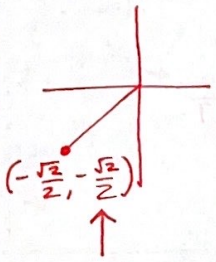
$= \frac{1}{\sqrt{3}}\left(\frac{\sqrt{3}}{\sqrt{3}}\right) = \frac{\sqrt{3}}{3}$

4. $\sin\left(-\frac{3\pi}{4}\right)$

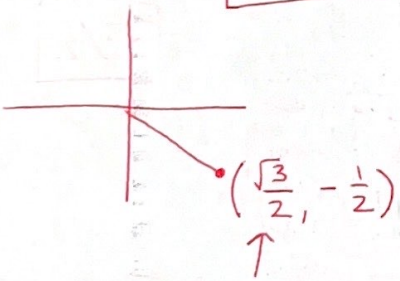
$-\frac{3\pi}{4}\left(\frac{180}{\pi}\right) = -135°$

$-135° + 360° = 225°$

$\sin\left(-\frac{3\pi}{4}\right) = -\frac{\sqrt{2}}{2}$

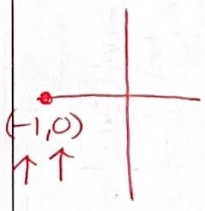


5. $\cos 330° = \frac{\sqrt{3}}{2}$



6. $\tan(3\pi)$

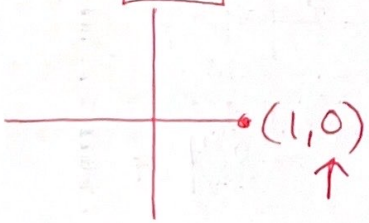
$= \frac{0}{-1} = 0$



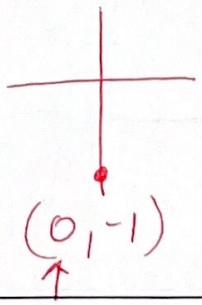
$3\pi\left(\frac{180}{\pi}\right) = 540°$

$540° - 360° = 180°$

7. $\sin 0 = 0$



8. $\cos\frac{3\pi}{2} = 0$



SOH - CAH - TOA

Trigonometry without The Unit Circle

- Make a triangle by dropping a perpendicular line to the x-axis.
- The angle near the origin/center is your reference angle.

Use the given point on the terminal side to find the value of the trig function indicated.

9. $\cos\theta$

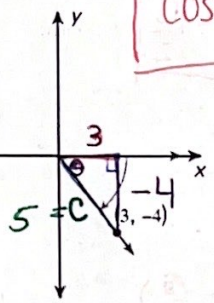
$a^2+b^2=c^2$

$3^2+(-4)^2=c^2$

$9+16=c^2$

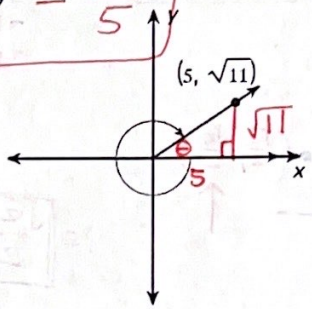
$25=c^2$

$c=5$



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

10. $\tan\theta = \frac{\sqrt{11}}{5}$



11. $\sin\theta$

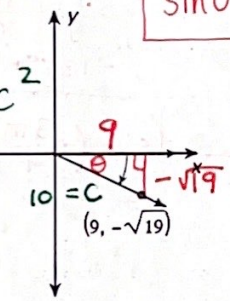
$a^2+b^2=c^2$

$9^2+(-\sqrt{19})^2=c^2$

$81+19=c^2$

$100=c^2$

$c=10$



$\sin\theta = \frac{-\sqrt{19}}{10}$

12. $\sin\theta$

$7^2+7^2=c^2$

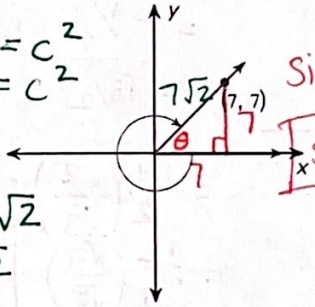
$49+49=c^2$

$98=c^2$

$c=\sqrt{98}$

$c=\sqrt{49}\sqrt{2}$

$c=7\sqrt{2}$



$\sin\theta = \frac{7}{7\sqrt{2}}$

$\sin\theta = \frac{1}{\sqrt{2}}\left(\frac{\sqrt{2}}{\sqrt{2}}\right)$

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

13. $\sin\theta$

$6^2+(-3)^2=c^2$

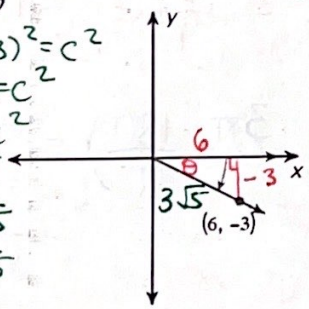
$36+9=c^2$

$45=c^2$

$c=\sqrt{45}$

$c=\sqrt{9}\sqrt{5}$

$c=3\sqrt{5}$



$\sin\theta = \frac{-3}{3\sqrt{5}}$

$= -\frac{1}{5}$

$= -\frac{\sqrt{5}}{5}$

14. $\tan\theta$

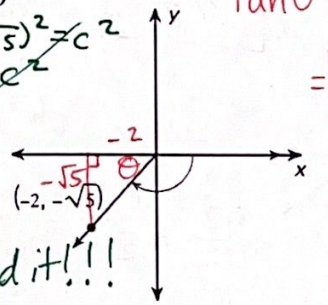
$(-2)^2+(-\sqrt{5})^2=c^2$

$4+5=c^2$

$9=c^2$

$c=3$

don't need it!!!



$\tan\theta = \frac{-\sqrt{5}}{-2}$

$= \sqrt{5}/2$

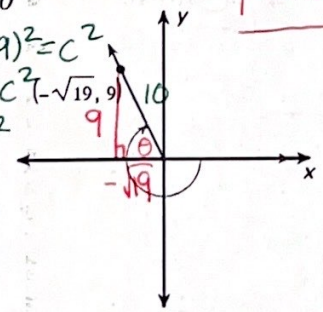
15. $\cos\theta$

$(-\sqrt{19})^2+(9)^2=c^2$

$19+81=c^2$

$100=c^2$

$c=10$



$\cos\theta = \frac{-\sqrt{19}}{10}$

16. $\tan\theta = \frac{-\sqrt{7}}{3}$