AGS 3 Name: _____ Period: _____ Date: _____

Notes 6.3

The point $(x, y)$ relates to ( $\cos\theta$ , $\sin\theta$ )

$\tan\theta =$ $\dfrac{\sin\theta}{\cos\theta}$ $(\theta = angle\ measure)$

For problems 1 - 3, determine the exact values of all six trigonometric functions of the given angle.

1. $\frac{5\pi}{4}$

$\sin\frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$

$\cos\frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$

$\tan\frac{5\pi}{4} = 1$

$\csc\frac{5\pi}{4} = -\sqrt{2}$

$\sec\frac{5\pi}{4} = -\sqrt{2}$

$\cot\frac{5\pi}{4} = 1$

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

$\sin\frac{5\pi}{6} = \frac{1}{2}$

$\cos\frac{5\pi}{6} = -\frac{\sqrt{3}}{2}$

$\tan\frac{5\pi}{6} = -\frac{\sqrt{3}}{3}$

$\csc\frac{5\pi}{6} = 2$

$\sec\frac{5\pi}{6} = -\frac{2\sqrt{3}}{3}$

$\cot\frac{5\pi}{6} = -\sqrt{3}$

3. $\frac{-1\pi}{2}$

$\sin\frac{-1\pi}{2} = -1$

$\cos\frac{-1\pi}{2} = 0$

$\tan\frac{-1\pi}{2}$ undefined

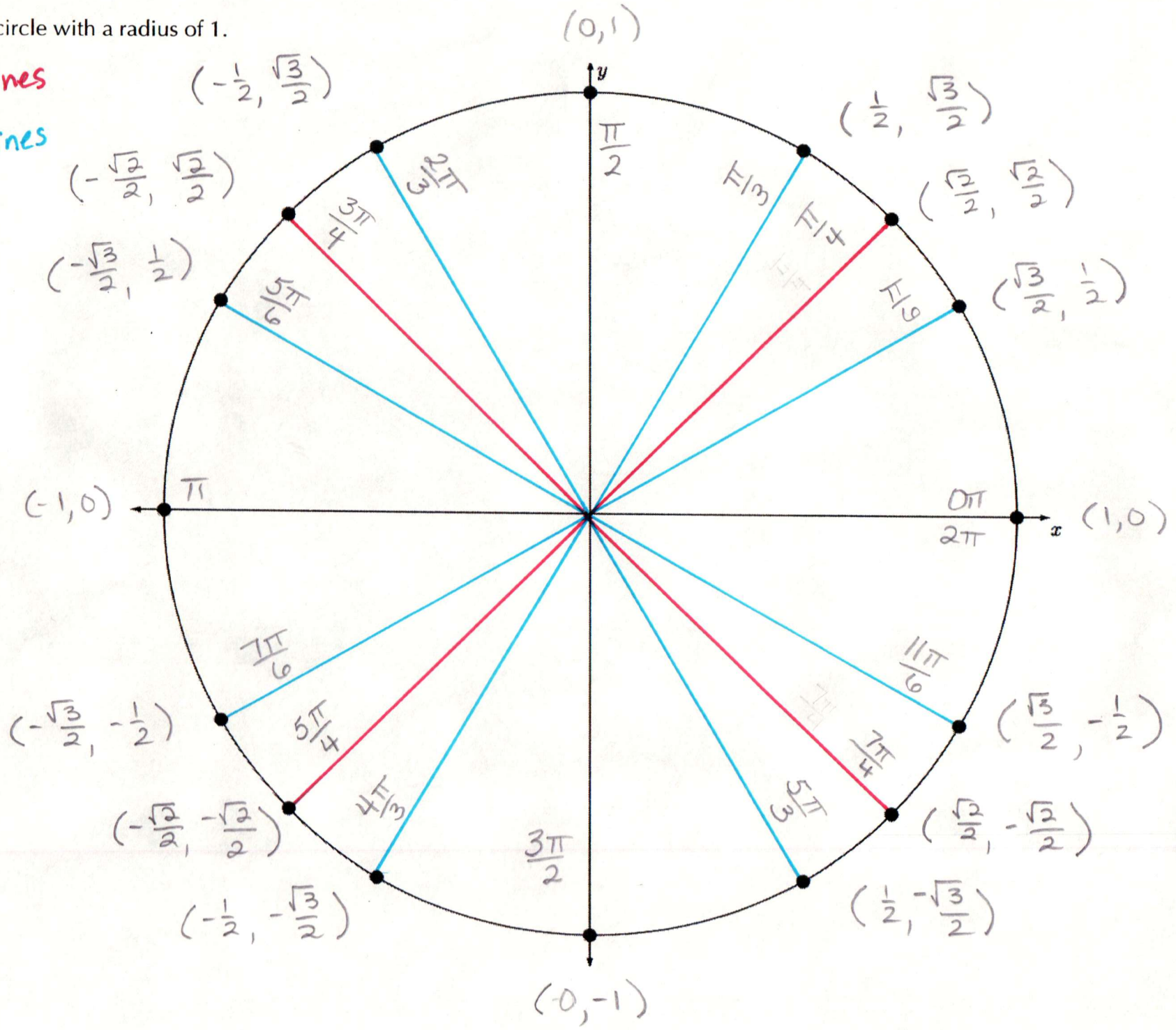
$\csc\frac{-1\pi}{2} = -1$

$\sec\frac{-1\pi}{2}$ undefined

$\cot\frac{-1\pi}{2} = 0$

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

A circle with a radius of 1.



When converting between degrees and radians you set up a proportion.
You can use either of these set-ups.

$$\frac{degrees}{360°} = \frac{radians}{2\pi} \quad \text{or} \quad \frac{degrees}{180°} = \frac{radians}{\pi}$$

Convert the angles from degrees to radians. Write exact answers.

4. 100° $\frac{100°}{360°} = \frac{x}{2\pi}$ $200\pi = 360x$ $\frac{200\pi}{360} = x$ $x = \frac{5\pi}{9}$

5. −76° $\frac{-76}{180°} = \frac{x}{\pi}$ $-76\pi = 180x$ $\frac{-76\pi}{180} = x$ $x = \frac{-19\pi}{45}$

6. 155° $\frac{155}{180} = \frac{x}{\pi}$ $155\pi = 180x$ $\frac{155\pi}{180} = x$ $x = \frac{31\pi}{36}$

Convert the angles from radians to degrees. Write exact answers.

7. $\frac{4\pi}{7}$ $\frac{x}{180} = \frac{\frac{4\pi}{7}}{\pi}$ $x\pi = \frac{720}{7}\pi$ $x = \frac{720}{7}°$ $\approx 102.86°$

8. $\frac{-5\pi}{2}$ $\frac{x}{180} = \frac{\frac{-5\pi}{2}}{\pi}$ $x\pi = -450\pi$ $x = -450°$ or $-90°$

9. $\frac{13\pi}{8}$ $\frac{x}{180} = \frac{\frac{13\pi}{8}}{\pi}$ $x\pi = \frac{585}{2}\pi$ $x = \frac{585°}{2}$ or $292.5°$

10. 480° is the same as 120°.

$480 - 360 =$