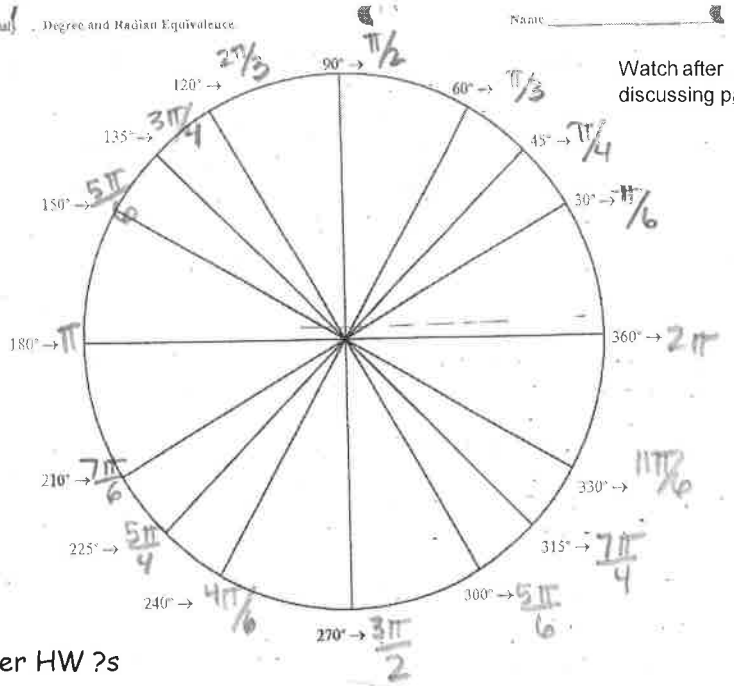
Math Anal. Degree and Radian Equivalence Name _____



Watch after discussing patterns.

all $\frac{\pi}{6} = 30°$ ref. ∠

all $\frac{\pi}{4} = 45°$ ref ∠

all $\frac{\pi}{3} = 60°$ ref ∠

I : 0 – $\frac{1}{2}$

II : $\frac{1}{2}$ – 1

III : 1 – $1\frac{1}{2}$

IV : $1\frac{1}{2}$ – 2

since 210° is 7(30°) we get $7(\frac{\pi}{6}) = \frac{7\pi}{6}$

etc.

Other HW ?s

Change from radians to degrees. $\angle \cdot \frac{180}{\pi}$ (or use shortcut when possible.)

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

$\frac{5\pi}{2} \cdot \frac{180}{\pi} = 450°$

or $5(\frac{\pi}{2}) = 5(90°) = 450°$

2. $-\frac{7\pi}{3}$

$-\frac{7\pi}{3} \cdot \frac{180}{\pi}$ $-420°$

or $-7(\frac{\pi}{3}) = -7(60) = -420°$

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

$5(\frac{\pi}{4}) = 5(45°) = 225°$

or $\frac{5\pi}{4} \cdot \frac{180}{\pi}$

4. $\frac{4\pi}{15} \cdot \frac{180}{\pi}$

48°

Change from degrees to radians $(\angle \cdot \frac{\pi}{180°})$ (or shortcut)

1. $150° \cdot \frac{\pi}{180}$

$\frac{15\pi}{18} = \frac{5\pi}{6}$

You know 150° has a 30° ref ∠. So what times 30 equals 150?

$30 \rightarrow \pi/6$ $5 \cdot 30 = 150$ so $150° = \frac{5\pi}{6}$

2. $-270°$ (−3(90°))

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

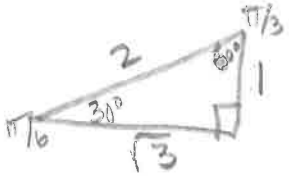
or $-270 \cdot \frac{\pi}{180} \div 9$

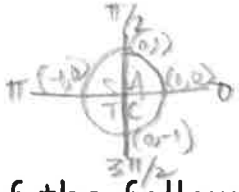
$-\frac{3\pi}{2}$

3. $8°45'$

$8\frac{45}{60}° = 8\frac{3}{4}°$

$= \frac{35}{4}° \cdot \frac{\pi}{180} = \frac{7\pi}{144}$





Find the exact values for each of the following.

1. $\sin\frac{7\pi}{6}$ 30° ref ∠ 210° – III

$-\frac{1}{2}$

2. $\cos\frac{3\pi}{4}$ 45° ref ∠ 135° II

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

3. $\tan\frac{4\pi}{3}$ 60° ref ∠ 240° III

$\sqrt{3}$

4. $\cos\left(-\frac{\pi}{2}\right)$ −90°

0

5. $\sin\frac{\pi}{2}$ 90°

1

6. $\tan 5\pi$

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

7. $\csc\frac{7\pi}{2}$ 3½

-1

8. $\cot\left(-\frac{3\pi}{4}\right)$ 45° ref ∠ −135° III

1