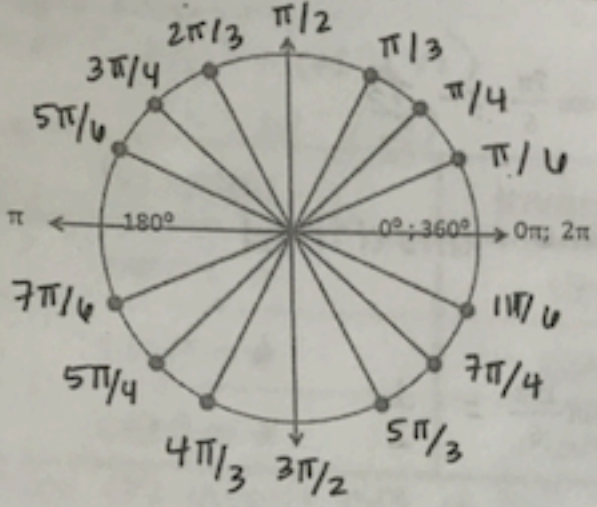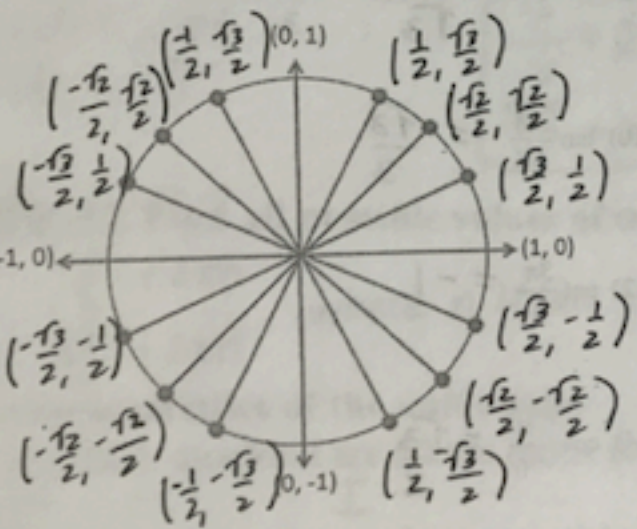Unit 6, HW #4

1. Write the radians of each point on the unit circle and their degrees: (i.e. π/2, π, 30° etc...)

2π/3   π/2
3π/4   π/3
5π/6   π/4
              π/6
π ← 180°   0°; 360° → 0π; 2π
7π/6   11π/6
5π/4   7π/4
   4π/3 3π/2 5π/3

2. Write the coordinates for all 16 points.

$\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$ (0, 1) $\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$
$\left(-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$ $\left(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$
$\left(-\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$ $\left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$
-1, 0) ← → (1, 0)
$\left(-\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$ $\left(\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$
$\left(-\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$ $\left(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$
$\left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$ 0, -1) $\left(\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$

3. Show 8 examples of how the 30-60-90 triangle fits within the unit circle:
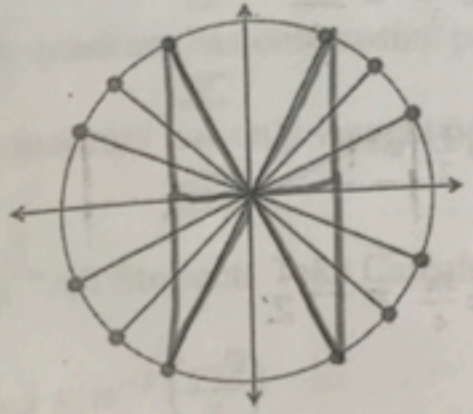
Find the exact value of each trigonometric function.

1) $\csc \dfrac{7\pi}{3} = \dfrac{2}{\sqrt{3}} = \dfrac{2\sqrt{3}}{3}$

2) $\cos \dfrac{7\pi}{6} = -\dfrac{\sqrt{3}}{2}$

3) $\sin \dfrac{11\pi}{6} = -\dfrac{1}{2}$

4) $\csc 0 = $ undefined

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

6) $\sin \dfrac{19\pi}{6} = -\dfrac{1}{2}$

7) $\tan \dfrac{4\pi}{3} = \sqrt{3}$

8) $\csc \dfrac{2\pi}{3} = \dfrac{2}{\sqrt{3}} = \dfrac{2\sqrt{3}}{3}$

9) $\cos -\dfrac{\pi}{2} = 0$

10) $\tan -\dfrac{\pi}{6} = -\dfrac{\sqrt{3}}{3}$

11) $\cot \dfrac{3\pi}{2} = 0$

12) $\cot \dfrac{3\pi}{4} = -1$

13) $\tan \dfrac{5\pi}{4} = 1$

14) $\cos -\dfrac{\pi}{6} = \dfrac{\sqrt{3}}{2}$

15) $\tan \dfrac{7\pi}{4} = -1$

16) $\sin \dfrac{2\pi}{3} = \dfrac{\sqrt{3}}{2}$

17) $\sec -\dfrac{3\pi}{4} = \dfrac{-2}{\sqrt{2}} = -\sqrt{2}$

18) $\sin \dfrac{\pi}{2} = 1$

19) $\sin \dfrac{11\pi}{4} = \dfrac{\sqrt{2}}{2}$

20) $\sec \dfrac{3\pi}{4} = -\sqrt{2}$