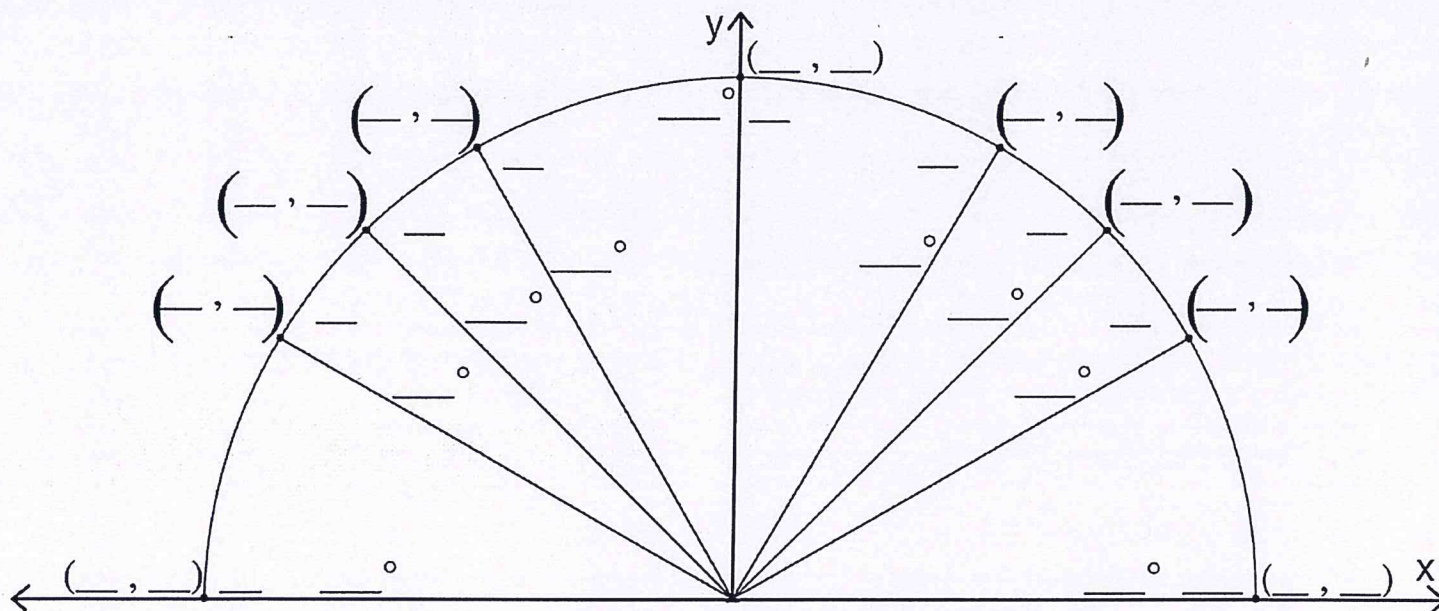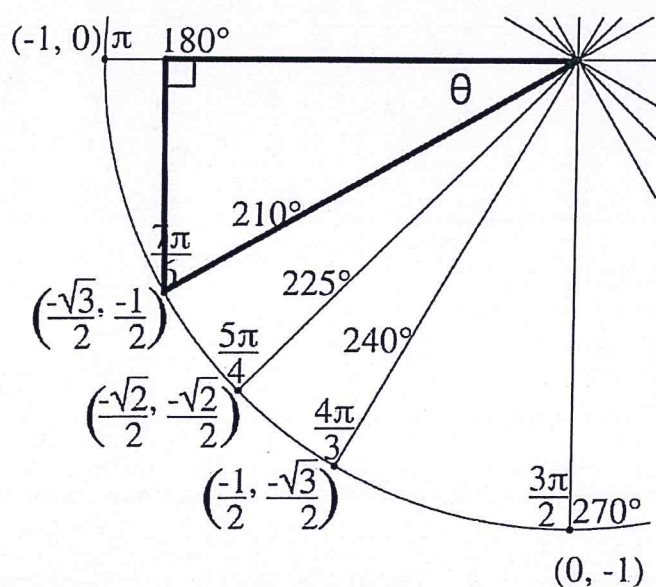**Bellwork   Alg 2B   Thursday, February 15, 2017**

1. Practice filling out the 1st and 2nd Quadrants of the Unit Circle with degrees, radians, and coordinates. Do as much as you can without looking at your notes.

y↑
(_ , _)
____°
___

(_ , _)   (_ , _)
(_ , _)   (_ , _)
(_ , _)   (_ , _)

(_ , _) ___ ___°   ___° ___ (_ , _) X

2. Use this diagram to find the EXACT values of the following:

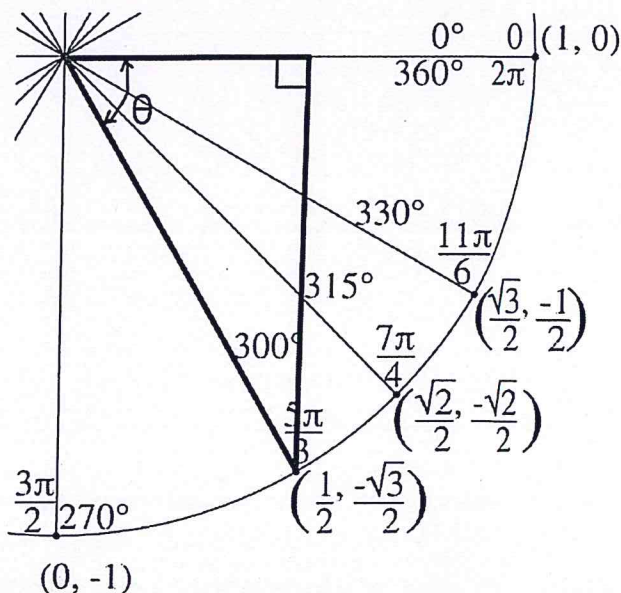3. Use this diagram to find the EXACT values of the following:

Remember, the radius of the Unit Circle is 1

$(-1, 0)|\pi$ 180°   θ

210°
$\frac{7\pi}{6}$
$(\frac{-\sqrt{3}}{2}, \frac{-1}{2})$ 225°
$\frac{5\pi}{4}$ 240°
$(\frac{-\sqrt{2}}{2}, \frac{-\sqrt{2}}{2})$ $\frac{4\pi}{3}$
$(\frac{-1}{2}, \frac{-\sqrt{3}}{2})$ $\frac{3\pi}{2}$ 270°

(0, -1)

a) Cosθ =   b) Sinθ =

c) Tanθ =

0°   0 |(1, 0)
360° 2π

θ

330°
$\frac{11\pi}{6}$
315° $(\frac{\sqrt{3}}{2}, \frac{-1}{2})$
300° $\frac{7\pi}{4}$
$\frac{5\pi}{3}$ $(\frac{\sqrt{2}}{2}, \frac{-\sqrt{2}}{2})$
$\frac{3\pi}{2}$ 270° $(\frac{1}{2}, \frac{-\sqrt{3}}{2})$

(0, -1)
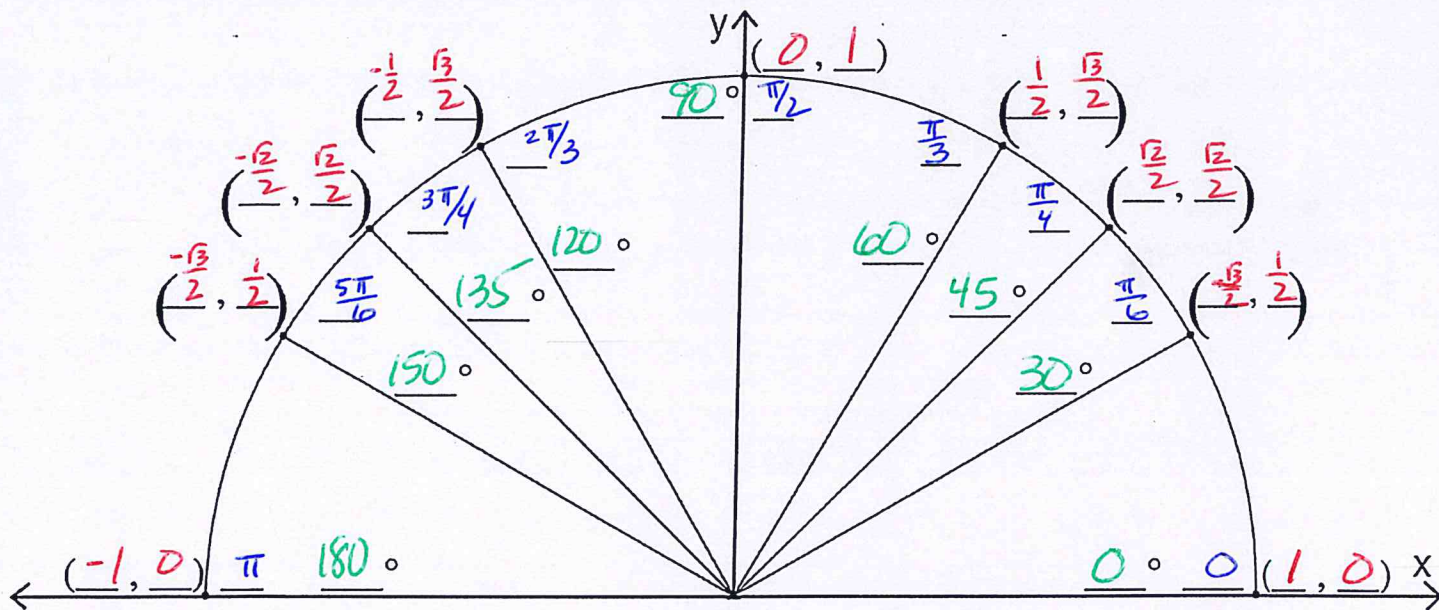
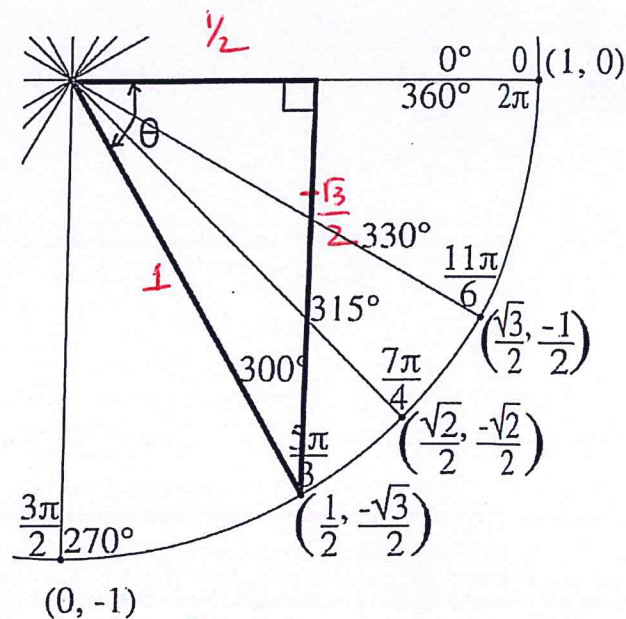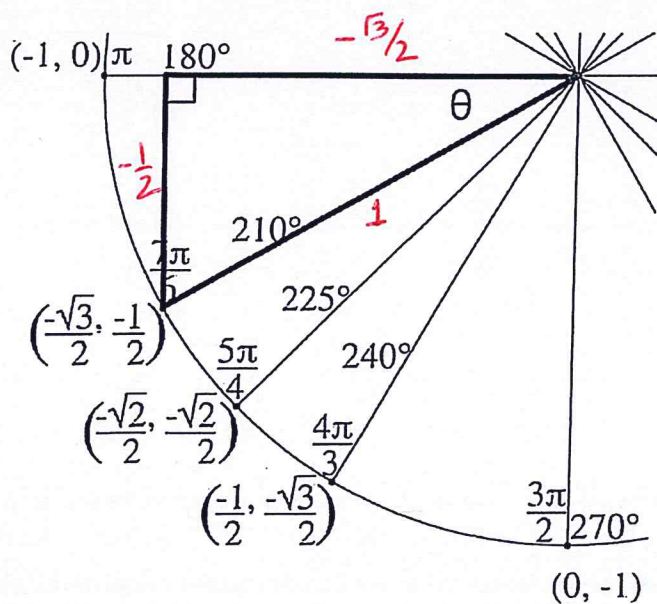a) Cosθ =   b) Sinθ =

c) Tanθ =

1. Practice filling out the 1st and 2nd Quadrants of the Unit Circle with degrees, radians, and coordinates. Do as much as you can without looking at your notes.

Top unit circle (1st and 2nd quadrants):
- $(0, 1)$, $90°$, $\pi/2$
- $\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$, $2\pi/3$, $120°$
- $\left(-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$, $3\pi/4$, $135°$
- $\left(-\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$, $\frac{5\pi}{6}$, $150°$
- $(-1, 0)$, π, $180°$
- $\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$, $\frac{\pi}{3}$, $60°$
- $\left(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$, $\frac{\pi}{4}$, $45°$
- $\left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$, $\frac{\pi}{6}$, $30°$
- $(1, 0)$, $0°$, 0

2. Use this diagram to find the EXACT values of the following:

3. Use this diagram to find the EXACT values of the following:

Remember, the radius of the Unit Circle is 1

Left diagram (Quadrant III):
- $(-1, 0)$, π, $180°$, $-\frac{\sqrt{3}}{2}$, θ
- $-\frac{1}{2}$
- $210°$, $\frac{7\pi}{6}$, $\left(\frac{-\sqrt{3}}{2}, \frac{-1}{2}\right)$
- $225°$, $\frac{5\pi}{4}$, $\left(\frac{-\sqrt{2}}{2}, \frac{-\sqrt{2}}{2}\right)$
- $240°$, $\frac{4\pi}{3}$, $\left(\frac{-1}{2}, \frac{-\sqrt{3}}{2}\right)$
- $\frac{3\pi}{2}$, $270°$, $(0, -1)$

Right diagram (Quadrant IV):
- $\frac{1}{2}$, $0°$, 0, $(1, 0)$, $360°$, 2π, 2θ
- $-\frac{\sqrt{3}}{2}$, $330°$, $\frac{11\pi}{6}$, $\left(\frac{\sqrt{3}}{2}, \frac{-1}{2}\right)$
- $315°$, $\frac{7\pi}{4}$, $\left(\frac{\sqrt{2}}{2}, \frac{-\sqrt{2}}{2}\right)$
- $300°$, $\frac{5\pi}{3}$, $\left(\frac{1}{2}, \frac{-\sqrt{3}}{2}\right)$
- $\frac{3\pi}{2}$, $270°$, $(0, -1)$

Problem 2:

a) $\cos\theta = \boxed{-\frac{\sqrt{3}}{2}}$

b) $\sin\theta = \boxed{\frac{-1}{2}}$

c) $\tan\theta = \dfrac{-\frac{1}{2}}{-\frac{\sqrt{3}}{2}} = -\frac{1}{2} \cdot -\frac{2}{\sqrt{3}} = \frac{1}{\sqrt{3}} = \boxed{\frac{\sqrt{3}}{3}}$

Problem 3:

a) $\cos\theta = \boxed{\frac{1}{2}}$

b) $\sin\theta = \boxed{-\frac{\sqrt{3}}{2}}$

c) $\tan\theta = \dfrac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}} = -\frac{\sqrt{3}}{2} \cdot \frac{2}{1} = \boxed{-\sqrt{3}}$

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