

Math 1060-003, Fall 2013
 Instructor: Kyle Steffen
 September 20, 2013
 Seat (6,6)

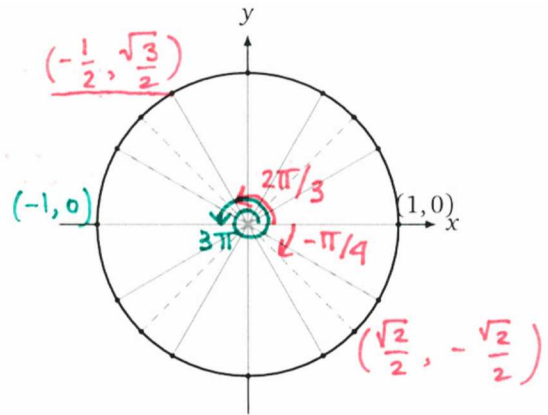
Name: Answer Key

uNID: _____

Total points: _____/30

1.

$\sin\left(\frac{2\pi}{3}\right) =$	$\frac{\sqrt{3}}{2}$	(+1)
$\cos\left(-\frac{\pi}{4}\right) =$	$\frac{\sqrt{2}}{2}$	(+1)
$\tan(3\pi) =$	0	(+1)



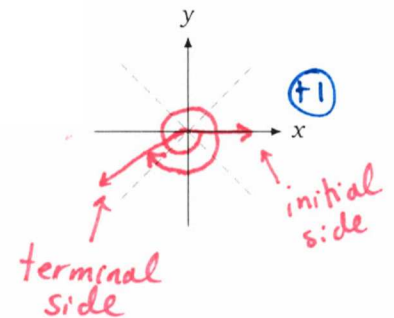
2.

(a) (1 pt)

(b) (2 pts)

$$-500^\circ + 360^\circ = -140^\circ$$

$$-140^\circ + 360^\circ = 220^\circ$$



Negative angle = -140°	(+1)
Positive angle = 220°	(+1)

3.

(a) (1 pt)

$$\frac{\pi}{60} \text{ rads} \cdot \frac{180^\circ}{\pi \text{ rads}} = \left(\frac{180}{60}\right)^\circ = 3^\circ$$

$$\theta = 3^\circ \quad (+1)$$

(b) (1 pt)

$$\theta > 0^\circ + \theta < 90^\circ \rightarrow \text{it exists}$$

$$90^\circ - \theta = 87^\circ$$

$$\text{Complement} = 87^\circ \quad (+1)$$

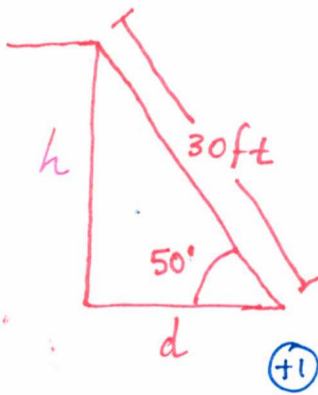
(c) (1 pt)

$$0^\circ < \theta < 180^\circ \rightarrow \text{it exists}$$

$$180^\circ - \theta = 177^\circ$$

$$\text{Supplement} = 177^\circ \quad (+1)$$

4. (3 pts)



$$\sin 50^\circ = \frac{h}{30\text{ft}}$$

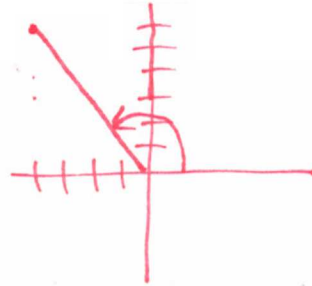
$$\cos 50^\circ = \frac{d}{30\text{ft}}$$

$$\text{Building height} = (30 \cdot \sin 50^\circ) \text{ ft} \quad (+1)$$

$$\text{Distance of rope from building} = (30 \cdot \cos 50^\circ) \text{ ft} \quad (+1)$$

5. (3 pts)

$\sin \theta =$	$\frac{6}{\sqrt{52}}$	(+)
$\cos \theta =$	$-\frac{4}{\sqrt{52}}$	(+)
$\tan \theta =$	$-\frac{3}{2}$	(+)



$$r = \sqrt{(-4)^2 + 6^2} = \sqrt{16 + 36} = \sqrt{52}$$

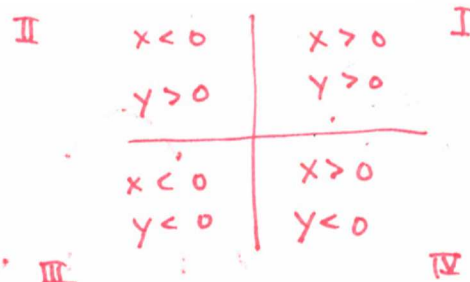
$$\sin \theta = y/r$$

$$\cos \theta = x/r$$

$$\tan \theta = y/x = 6/(-4) = -3/2$$

6. (2 pts)

Quadrant =	III	(+)
$\cos \theta =$	$-\frac{\sqrt{15}}{4}$	(+)



$\sin \theta < 0 \rightarrow$ either III or IV }
 $\tan \theta = y/x > 0 \rightarrow$ I, or III } \rightarrow III

$$\cos^2 \theta + \sin^2 \theta = 1$$

$$\cos^2 \theta + \left(-\frac{1}{4}\right)^2 = 1 \rightarrow \cos^2 \theta + \frac{1}{16} = 1$$

$$\cos^2 \theta = \frac{15}{16}$$

$$\cos \theta = \pm \sqrt{\frac{15}{16}}$$

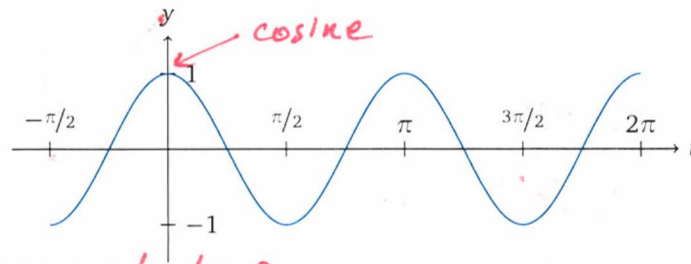
III \rightarrow - not +
 $\cos \theta = -\frac{\sqrt{15}}{4}$

7. (4 pts)

Function	Amplitude	Period
$\frac{1}{2} \cos(3x)$	$\frac{1}{2}$ (+)	$\frac{2\pi}{3}$ (+)
$-\sin\left(\frac{\pi x}{3}\right)$	1 (+)	6 (+)

$$\frac{2\pi}{b} = \frac{2\pi}{\pi/3} = 2\pi \cdot \frac{3}{\pi} = 6$$

8. (3 pts)



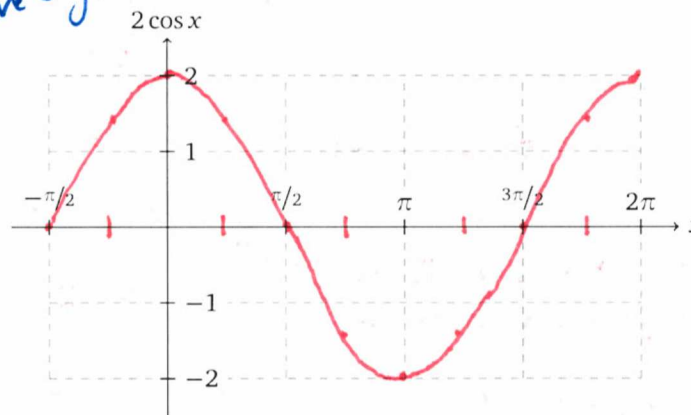
cycle begins at $t=0$ → Period = π → $b=2$
 " ends " $t=\pi$

Ampl = 1 (+ sign)

$$y = \cos(2t)$$

9. (6 pts)

Ampl + positive sign (+)
 Period (+)
 cos (+)



Ampl + negative sign (+)
 Period (+)
 sin (+)

