Standard Unit 8 Trigonometry Review   Name: _Key_   Block: _____

1. Express 235° in radian form.

$235 \cdot \dfrac{\pi}{180} = \dfrac{235\pi}{180} = \boxed{\dfrac{47\pi}{36}}$

2. What is the value of sin(-240°)?

$-240 + 360 = 120$

$\sin 120 = \boxed{\dfrac{\sqrt{3}}{2}}$

3. What is the simplified trig expression for $\dfrac{\tan\theta}{\sec\theta}$?

$\dfrac{\frac{\sin\theta}{\cos\theta}}{\frac{1}{\cos\theta}} = \dfrac{\sin\theta}{\cos\theta} \cdot \dfrac{\cos\theta}{1} = \boxed{\sin\theta}$

4. What is the amplitude and period for the graph $y=2\sin\frac{1}{2}\theta$?

Amplitude= __2__

Period= $\dfrac{2\pi}{\frac{1}{2}} = 2\pi \cdot \dfrac{2}{1} = \boxed{4\pi}$

5. Describe the transformation of the graph $y=-2\sin(\theta+\pi)-4$

- Reflection
- stretch by 2
- left π
- Down 4

6. Sketch the angle in standard position -420°

$\begin{array}{r} -420 \\ +360 \\ \hline -60 \\ +360 \\ \hline 300 \end{array}$

For #s 7-11 find the exact value of each:

7. csc 225°

$\dfrac{1}{\sin 225} = \dfrac{1}{-\frac{\sqrt{2}}{2}}$

$= \dfrac{2}{-\sqrt{2}}$

8. tan 120°

$\dfrac{\sin}{\cos} = \dfrac{\frac{\sqrt{3}}{2}}{-\frac{1}{2}}$

$\dfrac{\sqrt{3}}{2} \cdot \dfrac{-2}{1} = -\sqrt{3}$

9. $\sin\dfrac{7\pi}{6}$

$\dfrac{-1}{2}$

10. $\cos\dfrac{-11\pi}{6}$

$\dfrac{\sqrt{3}}{2}$

11. sec 2.1

* Calculator

-1.98

12. Find a coterminal angle with -333°

$\begin{array}{r} -333 \\ +360 \\ \hline 27° \end{array}$ $\begin{array}{r} -333 \\ -360 \\ \hline -693° \end{array}$

13. Find the radian measure of 63°

$63 \cdot \dfrac{\pi}{180} = \dfrac{63\pi}{180} = \dfrac{7\pi}{20}$

14. Find the degree measure of an angle $\dfrac{8\pi}{3}$ radians.

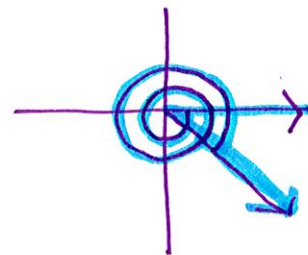$\dfrac{8\pi}{3} \cdot \dfrac{180}{\pi} = \dfrac{1440}{3} = \boxed{480°}$

15. Find the length of s to the nearest tenth.

$s = r\theta$

$s = 13\left(\dfrac{3\pi}{4}\right)$

$s = 30.63 \text{ ft}$
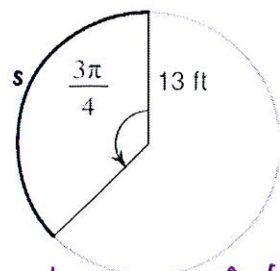
16. Graph the sine function is the amplitude is 2 and the period is $\dfrac{2\pi}{3}$.
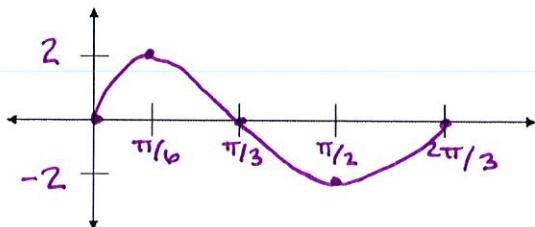
$y = a\sin b\theta$

$a = 2$

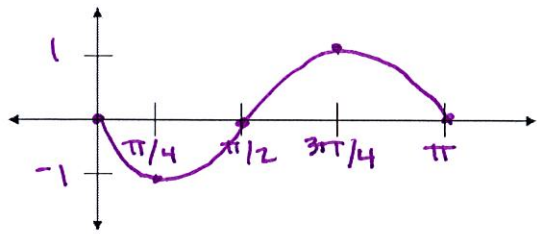$\text{period} = \dfrac{2\pi}{3}$

$\dfrac{2\pi}{3} = \dfrac{2\pi}{b}$ so $b = 3$

$y = 2\sin 3\theta$

$\frac{1}{3}\theta$	sin θ (2)
0	0
$\frac{\pi}{6} = \frac{1}{3} \cdot \frac{\pi}{2}$	1 = 2
$\frac{\pi}{3} = \frac{1}{3} \cdot \pi$	0
$\frac{\pi}{2} = \frac{1}{3} \cdot \frac{3\pi}{2}$	-1 = -2
$\frac{2\pi}{3} = \frac{1}{3} \cdot 2\pi$	0

17. Graph $y = -\sin 2\theta$

$a = -1$
$b = 2$
period $= \frac{2\pi}{2} = \pi$

$\frac{1}{2} \quad \theta$	$\sin \theta \; (-1)$
0	0
$\frac{\pi}{4} = \frac{1}{2} \cdot \frac{\pi}{2}$	$1 = -1$
$\frac{\pi}{2} = \frac{1}{2} \cdot \pi$	0
$\frac{3\pi}{4} = \frac{1}{2} \cdot \frac{3\pi}{2}$	$-1 = 1$
$\pi = \frac{1}{2} \cdot 2\pi$	0

18. Graph $y = 3\cos\frac{\theta}{2}$
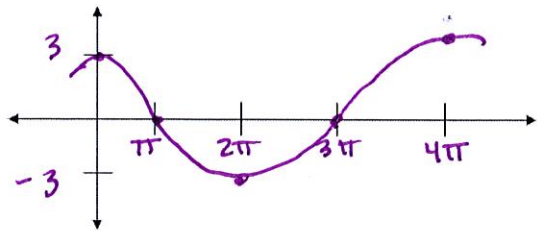
$a = 3$
$b = \frac{1}{2}$
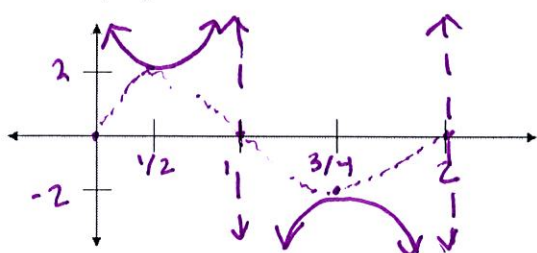period: $\frac{2\pi}{\frac{1}{2}} = 2\pi \cdot \frac{2}{1} = 4\pi$

$2 \cdot \theta$	$\cos\theta \; (3)$
0	$1 = 3$
$\pi = \frac{2}{1} \cdot \frac{\pi}{2}$	0
$2\pi = 2 \cdot \pi$	$-1 = -3$
$3\pi = \frac{2}{1} \cdot \frac{3\pi}{2}$	0
$4\pi = 2 \cdot 2\pi$	$1 = 3$

19. Graph $y = 3\tan 2\theta$

θ	$\tan\theta$
$-\frac{\pi}{4} = \frac{1}{2} \cdot -\frac{\pi}{2}$	und.
$-\frac{\pi}{8} = \frac{1}{2} \cdot -\frac{\pi}{4}$	$-1 = -3$
$0 \cdot \frac{1}{2} \quad 0$	0
$\frac{\pi}{8} \; \frac{1}{2} \; \frac{\pi}{4}$	$1 = 3$
$\pi/4 \; \frac{1}{2} \; \frac{\pi}{2}$	und.

20. Graph $y = 2\csc \pi\theta$

$a = 2$
$b = \pi$
$y = 2\sin\pi\theta$

θ	$\sin\theta \; (2)$
0	0
$\frac{1}{2} = \frac{1}{\pi} \cdot \frac{\pi}{2}$	$1 = 2$
$\frac{1}{1} = \frac{1}{\pi} \cdot \pi$	0
$\frac{3}{2} = \frac{1}{\pi} \cdot \frac{3\pi}{2}$	$-1 = -2$
$2 = \frac{1}{\pi} \cdot 2\pi$	0

21. Find the period and amplitude of the graph.
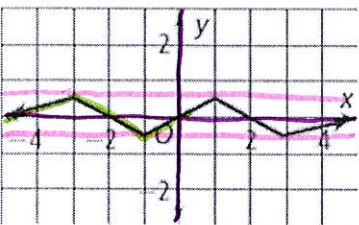
$A = \frac{0.5 - (-0.5)}{2}$
$A = 0.5$
$P = 4$

22. Verify the identity

$$\frac{\csc\theta}{\cot\theta} = \sec\theta$$

$$\frac{\frac{1}{\sin}}{\frac{\cos}{\sin}} = \frac{1}{\sin} \cdot \frac{\sin}{\cos} = \frac{1}{\cos}$$
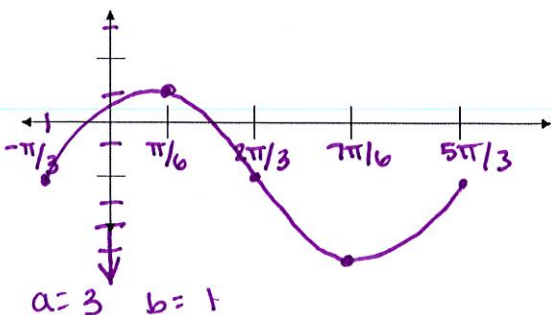
$= \sec\theta$

23. Simplify the expression:
$$\csc^2\theta(1 - \cos^2\theta)$$

$$\csc^2\theta (\sin^2\theta)$$

$$\frac{1}{\sin^2\theta} \cdot \sin^2\theta = \boxed{1}$$

24. Graph $y = 3\sin\left(\theta + \frac{\pi}{3}\right) - 2$ *Hint – this is the **one** time I'll let you use your calculator! ★ NOT For Honors– NO calc!

$a = 3 \quad b = 1$

θ	$\times \frac{1}{1}$	$-\frac{\pi}{3}$	
0	$1 = 0$	$-\frac{\pi}{3} = \frac{0\pi}{3} - \frac{\pi}{3} = \frac{-\pi}{3}$	
$\frac{\pi}{2}$	$1 = \frac{\pi}{2}$	$-\frac{\pi}{3} = \frac{3\pi}{6} - \frac{2\pi}{6} = \frac{\pi}{6}$	
π	$1 = \pi$	$-\frac{\pi}{3} = \frac{3\pi}{3} - \frac{\pi}{3} = \frac{2\pi}{3}$	
$\frac{3\pi}{2}$	$1 = \frac{3\pi}{2}$	$-\frac{\pi}{3} = \frac{9\pi}{6} - \frac{2\pi}{6} = \frac{7\pi}{6}$	
2π	$1 = 2\pi$	$-\frac{\pi}{3} = \frac{6\pi}{3} - \frac{\pi}{3} = \frac{5\pi}{3}$	

$\sin\theta$	$\times 3$	-2	
0	0	$-2 = -2$	
1	3	$-2 = 1$	
0	0	$-2 = -2$	
-1	-3	$-2 = -5$	
0	0	$-2 = -2$	