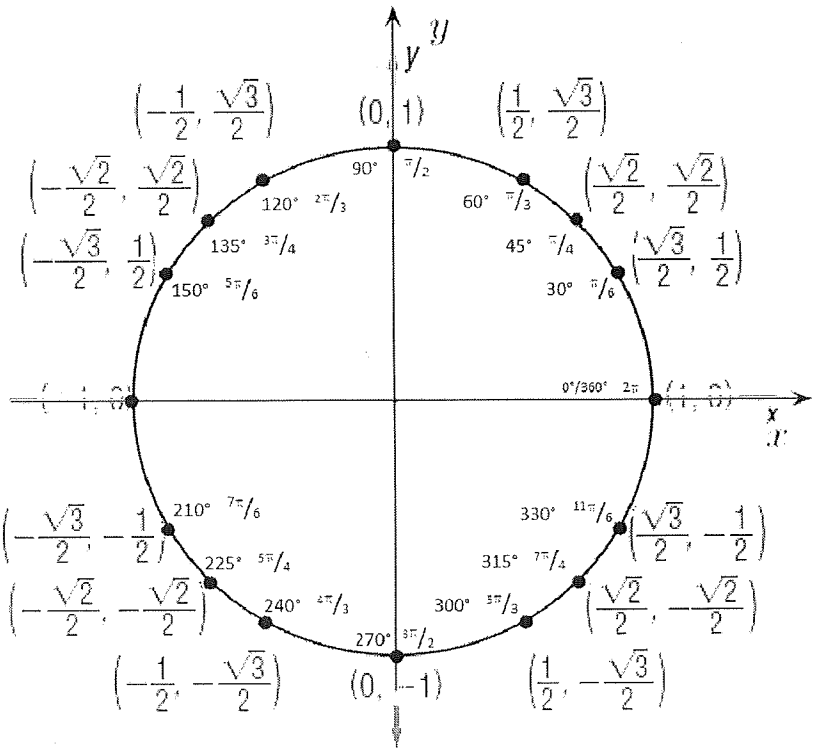
Name: Key Date: _____ Hour_____

Unit Circle Homework

Find the exact value of each function by using the unit circle. Place the question # by the coordinates that correspond to the answer of the question.



1. $\sin 690^\circ = \sin 330^\circ = -\frac{1}{2}$

2. $\cos 750^\circ = \cos 30^\circ = \frac{\sqrt{3}}{2}$

3. $\sec 5\pi = -1$

4. $\tan\left(\frac{14\pi}{6}\right) = \tan\left(\frac{\pi}{3}\right)$

$$\frac{\left(\frac{\sqrt{3}}{2}\right)}{\left(\frac{1}{2}\right)} = \sqrt{3}$$

5. $\cot\left(-\frac{3\pi}{2}\right) = \frac{\pi}{2} = \frac{x}{y}$

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

6. $\csc(-225^\circ) = \csc(135^\circ)$

recip. of sine

$= \sqrt{2}$

Directions: *Find the exact value of each function... and I mean EXACT.*
No decimals!!!!!!!

7. $\dfrac{cos60°+sin30°}{4}$ $\quad \dfrac{\frac{1}{2}+\frac{1}{2}}{4} = \dfrac{1}{4}$

8. $3(sin60°)(cos30°)$ $\quad 3\left(\frac{\sqrt{3}}{2}\right)\left(\frac{\sqrt{3}}{2}\right) = \frac{3\sqrt{9}}{4} = \frac{9}{4}$

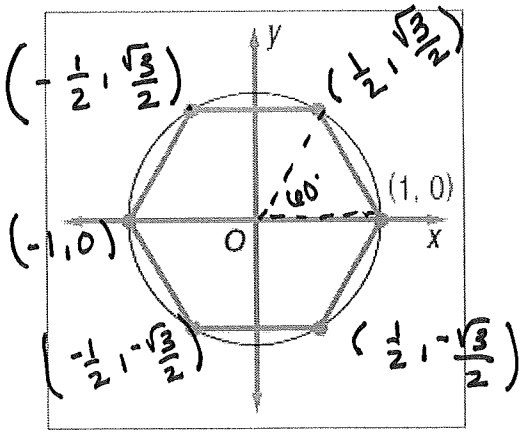
9. $\sin 30° - \sin 60°$ $\quad \frac{1}{2} - \frac{\sqrt{3}}{2} = \frac{1-\sqrt{3}}{2}$

10. $\dfrac{4\cos 330°+2\sin 60°}{3}$ $\quad \dfrac{4\left(\frac{\sqrt{3}}{2}\right)+2\left(\frac{\sqrt{3}}{2}\right)}{3} = \frac{2\sqrt{3}+\sqrt{3}}{3}$ $\quad \frac{3\sqrt{3}}{3} = \sqrt{3}$

11. $12(\sin 150°)(\cos 150°)$ $\quad 12\left(\frac{1}{2}\right)\left(-\frac{\sqrt{3}}{2}\right) = -\frac{12\sqrt{3}}{4}$ $\quad = -3\sqrt{3}$

12. $(\sin 30°)^2 + (\cos 30°)^2$ $\quad \left(\frac{1}{2}\right)^2 + \left(\frac{\sqrt{3}}{2}\right)^2$ $\quad \frac{1}{4} + \frac{3}{4} = \frac{4}{4} = 1$

13. A Regular hexagon is inscribed in a unit circle centered at the origin. If one vertex of the hexagon is at (1,0), find the exact coordinates of the remaining vertices. Use the picture to help!



14. **WHICH ONE DOESN'T BELONG?** Identify the expression that does not belong with the other three. Explain your reasoning.

$\sin 90° = 1$ $\quad \tan\frac{\pi}{4} = 1$ $\quad \cos 180° = -1$ $\quad \csc\frac{\pi}{2} = 1$

all others have a value of 1.