Algebra 2 Final Exam Review Chapter 13 Spring 2016

1. Convert each radian measure into degrees. Round to the nearest hundredth when needed.

a) $\frac{9\pi}{4}$ b) $\frac{17\pi}{6}$

2. Convert each degree measure into radians.

a) $780°$ b) $75°$

3. Find the exact values of each using the Unit Circle.

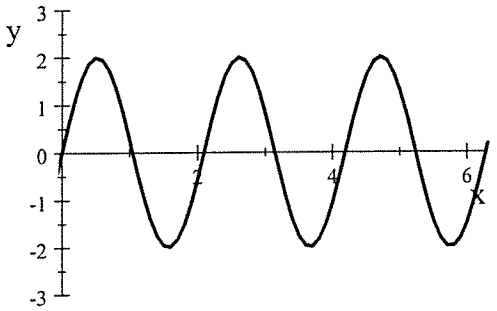
a) $\sin 810°$ b) $\cos(-450)°$ c) $\tan\frac{5\pi}{3}$ d) $\cos\frac{29\pi}{6}$ e) $\sin(-120°)$

f) $\cos 15\pi$ g) $\sin 270°$ h) $\tan\frac{7\pi}{6}$ i) $\cos\frac{3\pi}{4}$ j) $\tan 315°$

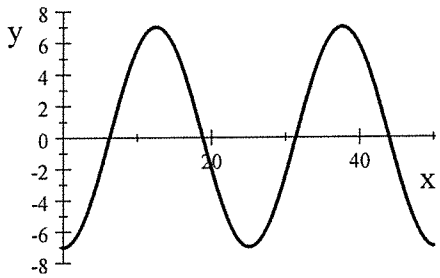
4. State the amplitude, period, equation of the midline, and phase shift of each function. Give the period and phase shift in radians.

a) $y = 9\sin\frac{2}{3}(x+\frac{\pi}{6})-5$ b) $y = -2\cos 7(x-\frac{3\pi}{4})+8$

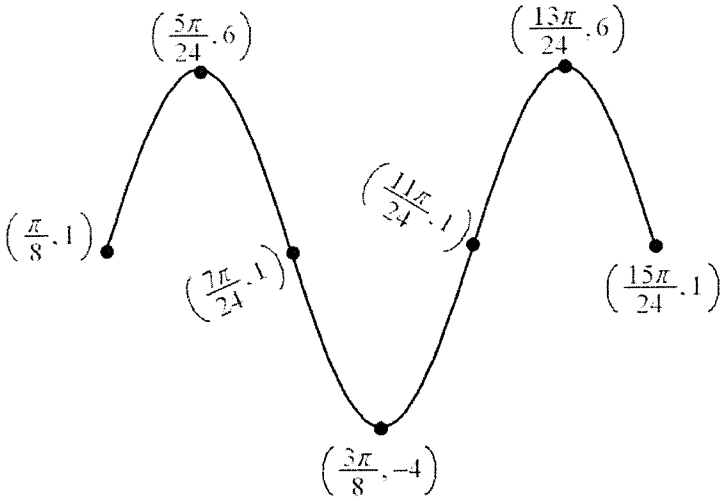
5. Write a Sine equation of this function. The window is 0 to 2π



6. Write a Cosine equation of this function. The window is 0 to 16π



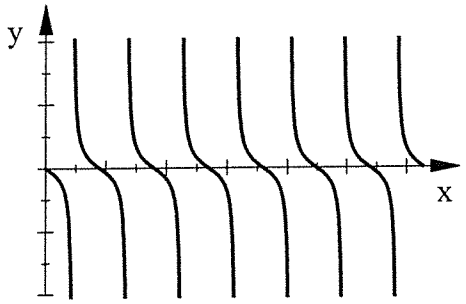
7. Write both a Sine and Cosine equation for this function.



8. Find both a positive and a negative coterminal angle for each given angle. Give the answer in the same form as the original angle.

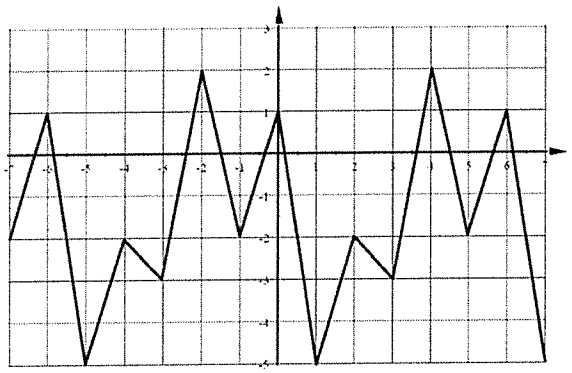
a) $\theta = 875°$ b) $\theta = \frac{27\pi}{8}$

9. Write the equation for this Tangent Function. The Window is 0 to 2π



10. For the given Tangent Function state the Period, give 3 x-intercepts, and give 3 vertical asymptotes.
$y = \text{Tan}7x$

11. State the Amplitude, Period, and Equation of the Midline for this periodic function.



12. Given $\text{Cot}A = \frac{5}{12}$ Find the remaining five trigonometric functions as ratios.

13. Find the exact values of each using the Unit Circle.

a) $\text{Sec}30°$ b) $\text{Csc}\frac{5\pi}{4}$ c) $\text{Cot}24\pi$

Algebra 2 Final Exam Review Ch 13 Spring 2016 **Answers**

1. a) $405°$ b) $510°$ 2. a) $\frac{13\pi}{3}$ b) $\frac{5\pi}{12}$

3. a) 1 b) 0 c) $-\sqrt{3}$ d) $-\frac{\sqrt{3}}{2}$ e) $-\frac{\sqrt{3}}{2}$

f) -1 g) -1 h) $\frac{\sqrt{3}}{3}$ i) $-\frac{\sqrt{2}}{2}$ j) -1

4. a) Amp = 9, Period = 3π, Midline: $y = -5$, Phase shift: $\frac{\pi}{6}$ left
   b) Amp = 2, Period = $\frac{2\pi}{7}$, Midline: $y = 8$, Phase shift: $\frac{3\pi}{4}$ right

5. $y = 2\sin 3x$ 6. $y = -7\cos\left(\frac{x}{4}\right)$

7. Possible answers are given:
Sine: $y = 5\text{Sin}6(x - \frac{\pi}{8}) + 1$ Starting Point $\left(\frac{\pi}{8}, 1\right)$
Cosine: $y = 5\text{Cos}6(x - \frac{5\pi}{24}) + 1$ Starting Point $\left(\frac{5\pi}{24}, 6\right)$

8. Possible answers are given:
a) Pos: $155°, 515°, 1235°, \ldots$ Neg: $-205°, -565°, \ldots$
b) Pos: $\frac{11\pi}{8}, \frac{43\pi}{8}, \ldots$ Neg: $-\frac{5\pi}{8}, -\frac{21\pi}{8}, \ldots$

9. $y = -\tan\left(\frac{7x}{2}\right)$

10. $Period = \frac{\pi}{7}$ $x - int = 0, \pm\frac{\pi}{7}, \pm\frac{2\pi}{7}, \pm\frac{3\pi}{7}$ $VA : x = \pm\frac{\pi}{14}, \pm\frac{3\pi}{14}, \pm\frac{5\pi}{14}$

11. Amplitude =3.5 Period=6 Midline: $y = -1.5$

12. $\text{Cos}A = \frac{5}{13}$ $\text{Sin}A = \frac{12}{13}$ $\text{Tan}A = \frac{12}{5}$ $\text{Sec}A = \frac{13}{5}$ $\text{Csc}A = \frac{13}{12}$

13. a) $\frac{2\sqrt{3}}{3}$ b) $-\sqrt{2}$ c) Undefined