Pre-Calculus
Trigonometric Functions Review Sheet

Non-Calculator Section

1. Show that $\tan^2\theta = \sec^2\theta - 1$.
   Convert to sin and cos, remove fractions, and look for the duck

2. Find the exact values of the 6 trigonometric function for the angle formed by a ray from the origin through (1, 0) and a ray from the origin through the point $(-3\sqrt{5}, 2)$.
   $\sin\theta = 2/7$, $\cos\theta = -(3\sqrt{5})/7$, $\tan\theta = -(2\sqrt{5})/15$, $\csc\theta = 7/2$, $\sec\theta = -(7\sqrt{5})/15$, $\cot\theta = -(3\sqrt{5})/2$

3. If $\sin\theta = 0.1$, find $\sin(\theta+\pi)$.
   -0.1

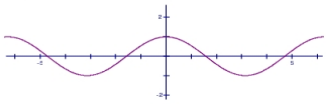
4. Find $\sec\theta = 2$ for all θ in radians.
   $\pi/3 + 2n\pi$, $-\pi/3 + 2\pi n$

5. Find the exact values of:
   a. $\sin(17\pi/4)$ — $\sqrt{2}/2$
   b. $\cos(5\pi)$ — -1
   c. $\tan(-3\pi/4)$ — 1

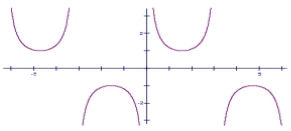
6. In which quadrant or quadrants (if any) are:
   a. sin and sec positive — I
   b. tan and sin negative — IV
   c. cos, sec, and tan negative — II

7. Find the exact values of the following expressions:
   a. $\sin^2 40° + \cos^2 40°$ — 1
   b. $\sin(-\pi) + \cos(5\pi)$ — -1
   c. $(\sin 80°)(\csc 80°)$ — 1

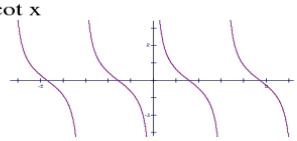
8. Graph the following from $-2\pi < x < 2\pi$. Label the axes, and label each x- and y-intercept, and each maximum and minimum with an exact coordinate pair.
   a. cos x



   b. csc x



   c. cot x



   d. 3 sin(x) + 1