Trigonometry Boot Camp - Practice Exercises

All problems should be solved without the use of a calculator.

1. Evaluate each given trigonometric function of an angle.

(a) \( \cos \left( \frac{2\pi}{3} \right) \)  
(b) \( \sin \left( \frac{11\pi}{2} \right) \)  
(c) \( \tan \left( -\frac{3\pi}{4} \right) \)  
(d) \( \csc \left( \frac{7\pi}{6} \right) \)  
(e) \( \cot \left( \frac{7\pi}{3} \right) \)  
(f) \( \sec \left( -\frac{9\pi}{4} \right) \) 

2. Find all values of \( \theta \) in the given range that satisfy the given equation.

(a) \( \sin \theta = -\frac{1}{2}, \ 0 \leq \theta \leq 2\pi \)  
(b) \( \sec \theta = \sqrt{2}, \ 0 \leq \theta \leq 2\pi \)  
(c) \( \tan \theta = \sqrt{3}, \ -\pi \leq \theta \leq \pi \) 

3. Find all values of \( x \), where \( 0 \leq x \leq 2\pi \), that satisfy the given equation.

(a) \( 4 \sin^2 x - 3 = 0 \)  
(b) \( \sin x + 1 = 2 \cos^2 x \)  
(c) \( \sin 3x = \frac{\sqrt{2}}{2} \)  
(d) \( \cos 2x = \cos x - 1 \)