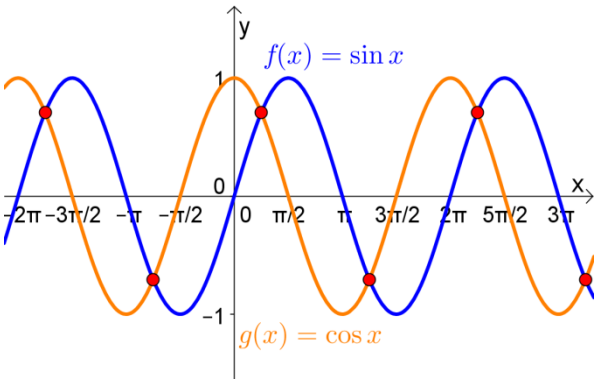
1. Find all solutions (in radians) of the given equation in the interval $[0, 2\pi)$: $3\tan^3\theta = \tan\theta$

2. Find all solutions of the given equation: $\tan^2\theta - 3\sec\theta = -3$

3. Find the values of x for which the graphs of $f(x) = \sin x$ and $g(x) = \cos x$ intersect. (Hint: for what values of x do $f(x) = g(x)$?)



4. Here's an equation: $\sqrt{3}\tan\frac{\theta}{2} - 1 = 0$

a) Find all solutions of the equation.

b) Find the solutions in the interval $[0, 4\pi)$.

Q: A bus driver was heading down a street in Walnut. He went right past a stop sign without stopping, went the wrong way on a one-way street, and then went on the left side of the road past a cop car. The cop did nothing, because he didn't break any traffic laws. Why not?

5. For each of the following trigonometric equations, first find all solutions (in radians). Then find all solutions (in radians) in the interval $[0, 2\pi)$.

a) $2\cos^2 x = -3\cos x - 1$

b) $\tan^2 x \sin x = \sin x$

c) $\sin^2 x + 3\sin x + 1 = 0$

d) $\sqrt{3}\tan^2 x - \tan x - \sqrt{3}\tan x + 1 = 0$

e) $1 - \sin x = \sqrt{3}\cos x$

f) $\tan x + \sec x = 1$

g) $2\tan x - \sec^2 x = 0$

h) $\sin^2 x = 2\cos x + 2$

i) $\sin 2x = \cos x$

j) $\cos 2x = 2 - 2\sin^2 x$

k) $\tan 3x + \sqrt{3} = 0$

l) $2\cos\frac{x}{2} + 1 = 0$

Optional exercises from the Sullivan book if you'd like more practice:
7.3 (p.465) #13-29 odd, 37-65 odd, 71-77 odd, 81
7.5 (p.487) #93-97 odd
7.6 (p.497) #71-77 odd