MATH 120: Solving Trig Equations

1. Find all solutions to

$$4 \cos x \sin x - 2 \sin x + 2 \cos x - 1 = 0$$

in the interval $$[-\pi/2, \pi/2]$$.

2. Find all solutions to

$$\csc^2 x - 2 = 0$$

in the interval $$[\pi, 3\pi]$$.

3. Find all solutions to

$$3 \sin^2 x + 5 \sin x - 1 = 0.$$ 

4. Find all the $$x$$-intercepts to

$$y = -2 + 7 \sin(3x + 4)$$

in the interval $$(-2, -1.5)$$.
5. Find all the $x$-intercepts to

$$y = 8 - 2\tan\left(\frac{\pi x + 4}{5}\right)$$

6. Graph and label

$$y = 1 - 2\cos(5\pi x - \pi).$$

7. Graph and label

$$3 + 3\sin\left(\frac{x}{4} + \frac{1}{2}\right).$$

8. Find all solutions to

$$2\cos\left(\frac{\pi}{3} (9x^2 - 3x + 2)\right) + 1 = 0$$

in the interval $(-1, 1)$.