

Solve the equations for  $0 \leq x < 2\pi$

1.  $\tan \theta + \sqrt{3} = 0$

$$x = \frac{2\pi}{3}, \frac{5\pi}{3}$$

2.  $2\cos \theta + \sqrt{3} = 0$

$$x = \frac{5\pi}{6}, \frac{7\pi}{6}$$

3.  $4\cos^2 \theta = 1$

$$x = \frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$$

4.  $4\cos^2 \theta = 3$

$$x = \frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$$

5.  $\tan \theta \sec \theta = \tan \theta$

$$x = 0, 2\pi$$

6.  $2\cos^2 \theta - 5\cos \theta + 2 = 0$

$$x = \frac{\pi}{3}, \frac{5\pi}{3}$$

Find the real zeros of each function using the calculator.

1.  $f(x) = 2x^2 - 5x - 3$

$$x = -\frac{1}{2}, 3$$

2.  $f(x) = -3x^2 - 17x - 10$

$$x = -5, -\frac{2}{3} = -.67$$

3.  $f(x) = 2x^3 - 13x^2 + 3x + 18$

$$x = -1, 1.5, 6$$

4.  $f(x) = x^4 + 4x^3 - 2x^2 - 5x + 3$

$$x = -4.15, -1.32$$

Looks like it touches almost at 1, but it actually does not touch the x-axis here

5.  $f(x) = 3\ln(2x - 1) + 3$

$$x = 0.68$$

6.  $f(x) = -3e^{-x-1} + 4$

$$x = -1.29$$