

Assignments for the Week of Oct. 3

- Read 6.5, 6.6
- 45 minutes of Khan Academy
- Textbook assignment due Friday 10/7:  
6.5 #1-24 all                      Inverse Trig Functions
- Textbook assignment due Friday 10/14:  
6.5 #25-55 odd                      Inverse Trig Functions  
6.6 #1-21 odd                      Solving Trig Equations  
#61-83 odd

6.6 Solving Trigonometric EquationsSolve for all values of  $x$  in the interval  $[0, 2\pi)$ 

8.  $\cos^2 x - 1 = 0$

$$\cos^2 x = 1$$

$$\sqrt{\cos^2 x} = \sqrt{1}$$

$$\cos x = \pm 1$$

$$x = 0, \pi$$

$$\cos^2 x - 1 = -\sin^2 x$$

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

$$\sin^2 x = 0$$

$$\sin x = 0$$

$$x = 0, \pi$$

$$(\cos x - 1)(\cos x + 1) = 0$$

$$\cos x - 1 = 0, \cos x + 1 = 0$$

$$\cos x = 1, \cos x = -1$$

$$x = 0, x = \pi$$

$$x^2 = 9$$

$$x = \pm 3$$

$$\sqrt{9} = 3$$

The Square Root Theorem states:

If  $[f(x)]^2 = c$ , then  $f(x) = \pm\sqrt{c}$

$$10. \sec^2 x + \sqrt{3} \sec x - \sqrt{2} \sec x - \sqrt{6} = 0$$

$$\sec x (\sec x + \sqrt{3}) - \sqrt{2} (\sec x + \sqrt{3}) = 0$$

$$(\sec x + \sqrt{3})(\sec x - \sqrt{2}) = 0$$

$$\sec x + \sqrt{3} = 0, \quad \sec x - \sqrt{2} = 0$$

$$\sec x = -\sqrt{3}, \quad \sec x = \sqrt{2}$$

$$x = \sec^{-1}(-\sqrt{3})$$

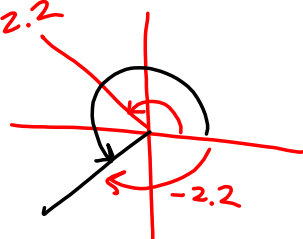
$$x = \cos^{-1}\left(-\frac{1}{\sqrt{3}}\right)$$

$$x \approx 2.2$$

$$x = \frac{\pi}{4}, \frac{7\pi}{4}$$

$$2\pi - 2.2$$

$$\approx 4.1$$



$$14. 2 \cos^2 x + 1 = -3 \cos x$$

$$2 \cos^2 x + 3 \cos x + 1 = 0$$

$$2u^2 + 3u + 1 = 0, \quad u = \cos x$$

$$(2u+1)(u+1) = 0$$

$$(2 \cos x + 1)(\cos x + 1) = 0$$

$$2 \cos x + 1 = 0, \quad \cos x + 1 = 0$$

$$\cos x = -\frac{1}{2} \quad \cos x = -1$$

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

$$18. 4 \cos^3 x = 3 \cos x$$

$$4 \cos^3 x - 3 \cos x = 0$$

$$\cos x (4 \cos^2 x - 3) = 0$$

$$\cos x = 0, \quad 4 \cos^2 x - 3 = 0$$

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

$$\cos^2 x = \frac{3}{4}$$

$$\cos x = \pm \frac{\sqrt{3}}{2}$$

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