

Trigonometry Lesson 6: Solving Trigonometric Equations

Textbook section 8.5

1. Find solutions to the following trigonometric equations (in other words, find angles that would satisfy the given equation):

$$\cos \theta = \frac{1}{2}$$

$$\sin \theta = 1$$

$$\tan \theta = \frac{\sqrt{3}}{3}$$

2. Are these *all* of the solutions? How do you know? (*Hint*: add 2π to one of your solutions; does this new angle also work?)
3. How can we write down *all* of the solutions to a trigonometric equation? Write a sequence of steps to follow to completely solve a trigonometric equation.

4. (Completely) solve the following trigonometric equations:

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

(2) $\cot\theta + 1 = 0$

(3) $\tan^2\theta = 3$

(4) $2\cos^2\theta - 1 = 0$

(5) $\sin\theta = \cos\theta$

(6) $2\sin^2x + 3\sin x - 2 = 0$

(7) $\tan 3\beta = -\sqrt{3}$

$$(8) \sec 2u = 2$$

$$(9) \cos^2 2\theta = \frac{1}{4}$$

$$(10) 2\cos^2 \theta - \tan \theta = 0$$

Homework: textbook section 8.5 #s 21-37 odd