

Pre-Calculus Section 5.5 Worksheet #2

I. Find all solutions (No calculator)

1) $2\sqrt{3}\cos x - \sqrt{6} = 0$

2) $\sin 3x = -1$

II. Find solutions in the interval $[0, 2\pi)$ (No calculator).

3) $2\tan x \cos x + 2\cos x - \tan x - 1 = 0$

4) $10\sin x - 4\sqrt{3} = \sqrt{3}$

5) $2\csc^2 x - 3\csc x - 2 = 0$

6) $2\tan^2 \frac{x}{4} = 2$

III. Find solutions in the interval $[0, 2\pi)$ (No calculator)

7) $\sin^2 x + \cos x + 1 = 0$

Using a graphing utility, find solutions in the interval $[0, 2\pi)$

Round to three decimal places.

1) $\cos x = -\frac{1}{5}$

2) $6\cos^2 x + \cos x - 2 = 0$

3) $3\tan^2 x + 4\tan x - 4 = 0$

4) $4\sin x = 3 - x$

5) $\csc^2 x = 3\csc x + 4$

Answers (No Calculator)

1. $x = \frac{\pi}{4} + 2\pi n; x = \frac{7\pi}{4} + 2\pi n; n \in \mathbb{Z}$ 2. $x = \frac{\pi}{2} + \frac{2\pi}{3}n; n \in \mathbb{Z}$ 3. $x = \frac{\pi}{3}, \frac{5\pi}{3}, \frac{3\pi}{4}, \frac{7\pi}{4}$

4. $x = \frac{\pi}{3}, \frac{2\pi}{3}$ 5. $x = \frac{\pi}{6}, \frac{5\pi}{6}$ 6. $x = \pi$ 7. $x = \pi$

ANSWERS (Calculator):

1. $x=1.772, 4.511$ 2. $x=1.047, 2.301, 5.236, 3.983$ 3. $x=0.588, 2.034, 3.730, 5.176$

4. $x=0.633, 3.189, 5.582$ 5. $x=0.253, 2.889, 4.712$