

Math 121 (Lesieutre)
Quiz 6
October ??, 2017

Name: _____

Problem 1. Find all solutions between 0 and 2π :

$$\cos^2 \theta + 3 \cos \theta + 2 = 0$$

Let $u = \cos \theta$. Then we have $u^2 + 3u + 2 = 0$:

$$\begin{aligned}u^2 + 3u + 2 &= 0 \\(u + 1)(u + 2) &= 0 \\u &= -1 \text{ or } -2 \\ \cos \theta &= -1 \text{ or } -2\end{aligned}$$

$\cos \theta = -2$ is impossible: cosine is between -1 and 1 . $\cos \theta = -1$ happens for $\theta = \pi$, and that's the only solution in our range.