

Trigonometry - Solving equations with multiple angle arguments in  $[0, 2\pi)$

1) Find the solutions:  $\sin 2\theta = 1/2$  for  $0 \leq \theta < 2\pi$ : \_\_\_\_\_

2) Find all solutions:  $\sin 2\theta = 1/2$  for  $\theta$  : \_\_\_\_\_

3) List some of the solutions you have found in problem 2: Specifically, let  $k = -1, 0, 1, 2, 3, 4$ . \_\_\_\_\_

4) Of those in problem 3, list the solutions that are in  $[0, 2\pi)$  \_\_\_\_\_

5) Compare the results of problem 1 and problem 5, they should be the same.

Try solving the following for  $\theta$  in  $[0, 2\pi)$ :

1)  $\tan \frac{1}{2}\theta = \frac{\sqrt{3}}{3}$

2)  $\sin 2\theta = -1$

3)  $2 \cos 3\theta = -1$