

Math 105: Trigonometry
Worksheet 4, Due Thursday July 11th at noon

1. Use algebraic methods to find all solutions to $\sin^2(\theta) - \cos(\theta) = 1$ for
- (a) θ in the interval $[0, 2\pi)$
 - (b) any real value of θ .

2. Solve $4 \sin^2(x) + 33 \sin(x) - 27 = 0$ for $0 \leq x < 2\pi$.

3. Prove the following are identities

(a) $\cos(u) \sin(v) = \frac{1}{2} [\sin(u + v) - \sin(u - v)].$

(b) $\sin(\omega) - \sin(t) = 2 \cos\left(\frac{\omega+t}{2}\right) \sin\left(\frac{\omega-t}{2}\right).$