[trigonometry]

1. Prove:
   a. $\sin\theta\cos\theta\tan\theta = 1 - \cos^2\theta$
   b. $\sin\theta + \tan\theta = \tan\theta\,(1 + \cos\theta)$
   c. $\tan\theta + \cot\theta = \sec\theta\csc\theta$
   d. $\tan\theta = \tan^2\theta\cot\theta$
   e. $\frac{\csc\theta}{\csc\theta} + \frac{\csc}{\csc\theta} = 2\sec^2\theta$
   f. $\sin^4\theta - \cos^4\theta = 1 - 2\cos^2\theta$
2. Solve: $0 \le x \le 2\pi$
   a. $2\cos x = 1$
   b. $2\cos^2 x = 1$
   c. $\sin^2 x + \sin x = 0$
   d. $2\cos^2 x - \cos x = 0$
   e. $2\cos^2 x + \cos x - 1 = 0$
3. Solve: $0 \le x \le 360$
   a. $5\sin x = 4$
   b. $\sin 2x = 0.75$
   c. $4\cos 2x - 3 = 0$
   d. $3\tan x - 2 = 0$
   e. $5\tan 2x + 2 = 0$
   f. $2\sin x = \cos x$
   g. $\csc x = 2.9$
4. Solve for θ, $0 \le \theta \le 360$: $\sin\theta = -0.7570$
5. Solve for θ, $0 \le \theta \le 2\pi$:
   a. $\cos\theta = \frac{\sqrt{3}}{2}$
   b. $\cos\theta\left(1 + \sqrt{2}\sin\theta\right) = 0$
6. Solve for the trig ratios only (i.e. $\sin\theta = \cdots$ or $\cos\theta = \cdots$)
   a. $\sin^2\theta - 1 = 0$
   b. $\sin^2\theta + 2\sin\theta - 3 = 0$