Trig II – Practice Test

1. Express each of the following as a single and most simplified trig function.

   a) $\sin(3a)\cos(2a)+\cos(3a)\sin(2a)$ b) $4\sin\frac{\theta}{2}\cos\frac{\theta}{2}$ c) $6\sin^2(2\theta)-3$

2. Given $\cos x=\frac{4}{5}$ and $\sin y=\frac{12}{13}$ for x and y in the interval $\left[0,\frac{\pi}{2}\right]$, find the **exact** value of $\cos(x-y)$.

3. If $\cos\theta=\frac{-7}{25}$ and $\pi\le\theta\le\frac{3\pi}{2}$ find the exact value of $\sin\left(\frac{\theta}{2}\right)$.

4. Determine the exact value of $\cos\left(\frac{5\pi}{8}\right)$.

5. Solve for x in radians for the given intervals:

   a) $\tan x=0$ $-\pi\le x\le\pi$ b) $\sin 2x=-\frac{\sqrt{3}}{2}$ $-\pi\le x\le 0$

   c) $\sec x\csc x-2\csc x=0$ $0\le x\le 2\pi$

6. Prove:

   a) $\cos(-x)+\cos(\pi-x)=\cos(\pi+x)+\cos x$

   b) $\frac{1-2\sin^2 x}{\sin x+\cos x}+2\sin\frac{x}{2}\cos\frac{x}{2}=\cos x$

   c) $\sin x-\tan y\cos x=\frac{\sin(x-y)}{\cos y}$