Math 2312 – Pre-Calculus **_Assignment 4_**

Professor: Fred Khoury

***Directions*:** Show your work whenever possible: a correct answer is worth 0 point without any supporting work.

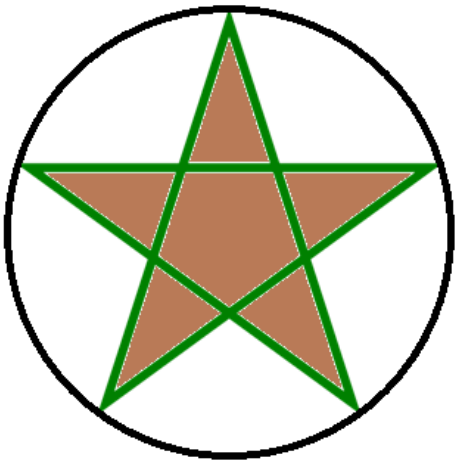
1. In any triangle *ABC*, prove that:

$$a = b\cos C \ + \ c \ \cos B$$

$$b = c\cos A \ + \ a \ \cos C$$

$$c = a\cos B \ + \ b \ \cos A$$

2. Find the area of the shaded star that is inscribed in a circle with a radius 1.



3. Evaluate:

$$\sin 1° + \sin 2° + \sin 3° + \cdots\cdots + \sin 357° + \sin 358° + \sin 359°$$

$$\sin^2 1° + \sin^2 2° + \sin^2 3° + \cdots\cdots + \sin^2 357° + \sin^2 358° + \sin^2 359°$$

4. Find the solution(s) for: $\cos 2x + \cos 4x = \cos x$