Name: _____ M$6 Homework 43

1. From a point on level ground, a surveyor finds the angle of elevation of the top of a TV tower to be 31.7º. After walking 70 meters in a straight line toward the tower, he finds that the angle of elevation of the top of the tower is 58.4º Find the height of the tower to the *nearest meter*.

1. _____

2. Sarah is designing a triangular piece for a metal sculpture. She tells Amanda that two of the sides of the piece are 40 inches and 15 inches, and the angle opposite the 40-inch side measures 120º. Amanda decides to sketch the piece that Sarah described. How many different triangles can she sketch that match Sarah's description?

2. _____

3. Ms. Donal's third grade class is creating a food pyramid out of felt pieces. To fit on the bulletin board, the nutrition information will take the form of a triangle with sides of 24 inches, 24 inches, and 20 inches.
   a) Find the size of the vertex angle to the nearest degree.
   b) Find, to the nearest square inch, the area the triangle will take up on the bulletin board.

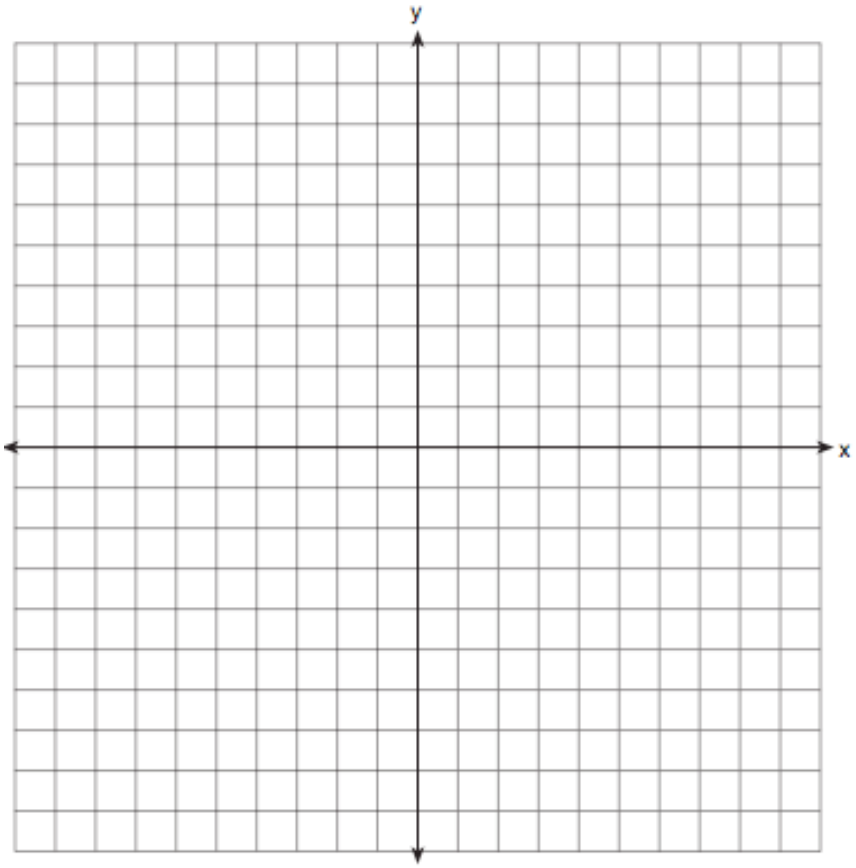
3. _____

4. Prove that $\dfrac{1+\cos\theta+\cos 2\theta}{\sin\theta+\sin 2\theta}=\cot\theta$. (Do *not* leave this blank. Refer to formulas.)

5. If $\sin\theta=-\dfrac{\sqrt{5}}{5}$ and $\cos\theta$ is negative, what is the exact value of $\tan\theta$?

5.

6. Sketch the graphs of $xy=-4$ and $16x^2-4(y-2)^2=64$ on the axes below. Determine the number of points of intersection of the two graphs. (Do <u>not</u> use a calculator.)



6.