Math 10460 - Honors Mathematics II
Homework 1b - Due Wednesday, January 20

(4) Consider the polar equation $r = \sin 2\theta$.
   (a) Graph this equation.
   (b) Find an expression for the equation in Cartesian coordinates. (Hint: recall the double angle formula: $\sin 2\theta = 2 \sin \theta \cos \theta$.)

(5) Consider the polar equation $r = \sin k\theta$ for k a positive integer. How many petals (enclosed regions) does the graph of $r = \sin k\theta$ have?

(6) Exercise 12.3 from the text

(7) Exercise 12.7 from the text

(8) Exercise 12.8 from the text