Constant Perimeter

1. On a blank sheet of graph paper, draw 4 rectangles with a perimeter of 36 and 4 rectangles with a perimeter of 24. Find each area and write the answer inside the rectangle.

2. Complete the chart below by listing all possible base/height combinations which have a perimeter of 36. You will be using this chart to make a graph, so be sure to include (B,H) of (17,1) as well as (1,17). Organize your chart from smallest to largest base. Complete the second chart for a fixed perimeter of 24.

B	H	A	P
1	17	17	36
2			36
			36
			36
			36

B	H	A	P
	11	11	24
2			2
			4
			24

3. [illegible] graph paper, plot base versus area. Make a horizontal axis from 0 to [illegible] the base. Use a [illegible] from 0 to 100 to represent [illegible] plotting base vs. area from chart 1, connect the [illegible] curve. Plot the data from the second chart [illegible] different colored pencil to make the curve. [illegible] graph to complete the following questions.

4. For a fixed perimeter of 36, a minimum area of ____ occurs if the dimensions are _____ by _____. The maximum occurs when the dimensions are _____ by _____.

5. For a fixed perimeter of 24, a minimum area of ____ occurs if the dimensions are _____ by _____. The maximum occurs when the dimensions are _____ by _____.

6. For a rectangle whose perimeter is 48, predict the dimensions which give minimum area , ____by____ , and those that give maximum area , ____by____. What are your predictions for a fixed perimeter of 60? Minimum:_____ Maximum:_____

7. If your mother asked you to build a rectangular garden of largest area out of 120 ft. of fencing, what dimensions would you make the garden?

8. What if it didn't have to be a rectangle?