

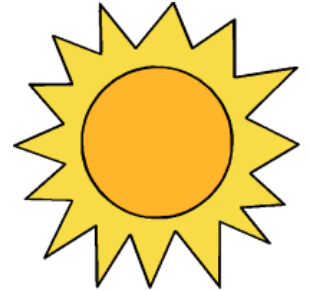
Name _____

Class Period _____

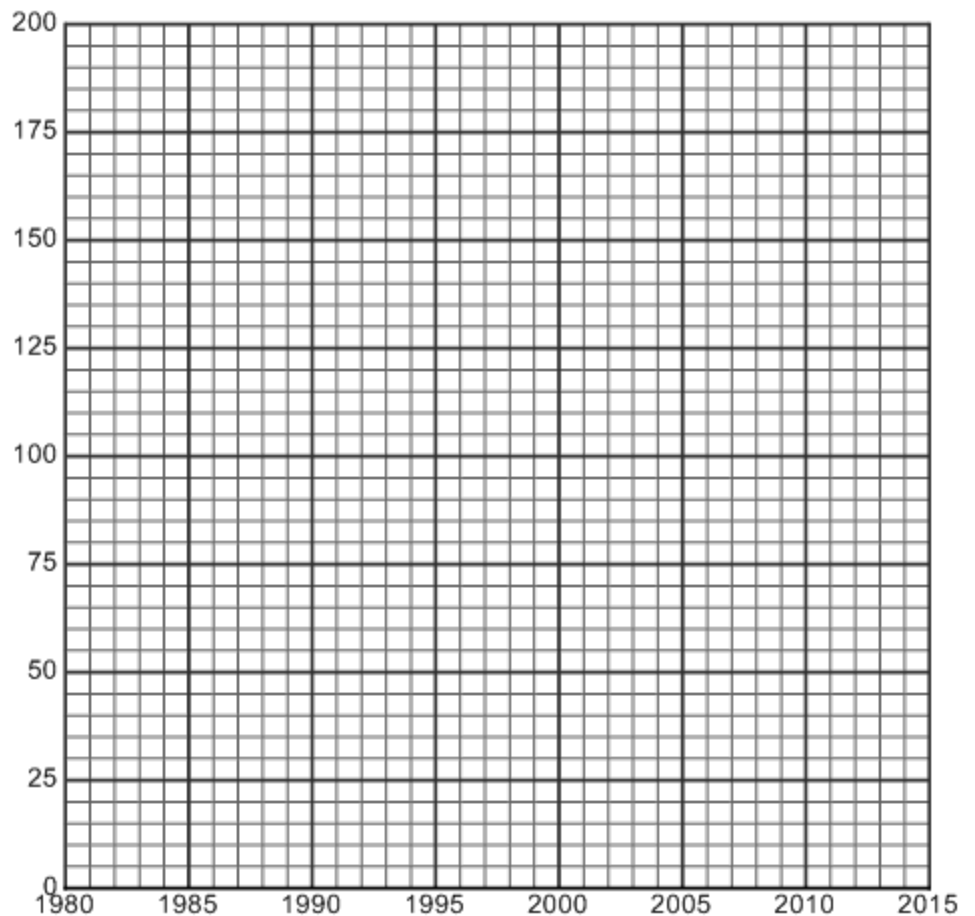
Pre-Calculus

Sunspots: Modeling Real Data Part 2

Sunspots are explosions of solar energy which travel to earth on the solar wind, energizing earth's atmosphere. There is a phenomenon known as the sunspot cycles, at the peak of which there is a marked increase in the number of sunspots seen on the sun's surface. Planning for satellite orbits and space missions often require knowledge of solar activity levels years in advance. Long distance radio reception is often stronger and more reliable at the height of these cycles, although sometimes the solar energy becomes too intense. It can disrupt radio communications, interfere with electric power distribution networks and satellite transmissions, and even get into telephone wires and interrupt telephone conversations. At these sunspot peaks, displays of the Northern and Southern Lights are more intense and widespread.



Year	Average # sunspots per month
1984	46
1985	18
1986	13
1987	29
1988	100
1989	
1990	142
1991	146
1992	94
1993	55
1994	30
1995	18
1996	9
1997	21
1998	64
1999	93
2000	119
2001	111
2002	104
2003	64
2004	44
2005	31
2006	18
2007	8
2008	6



1. Find a function (model) to describe the data. Discuss **ALL** the important features of the function.
2. Is it possible to find a model that fits the data points perfectly? Explain.
3. Based on your model, how often do the number of sunspots peak?
4. Use your model to predict the year of the next peak in sunspots.
5. Use your model to predict the number of sunspots for 1989 and for this year.
6. Based on your model, do you think that the total number of sunspots this year will be more or less than last year? (Explain your reasoning.)