Name _____ Date _____ Period _____

Graphing Homework # _____

Seasons on our planet are caused by a number of factors. One reason we experience seasons is due to the Earth's revolution. Revolution is the orbiting motion around the sun and it take 365¼ days for our planet to complete one revolution. Every 4 years we experience a leap year to keep track of the ¼ of a day. Another important factor in the seasons is the tilt or inclination of the Earth's axis. Our axis is tilted by a 23 ½° angle. This tilt causes the direct rays of the sun to change location throughout the year.

Our season dates are determined by when the sun's direct rays strike specific lines of latitude. The equinoxes, spring and fall, happen when the direct ray of the sun strikes the equator. This is normally March 21st and September 23rd. The solstices are the first day of summer or winter and happen when the direct ray of the sun strikes the Tropic of Capricorn (23 ½° S) or the Tropic of Cancer (23 ½° N). The summer solstice is June 21st while the first day of winter is December 21st.
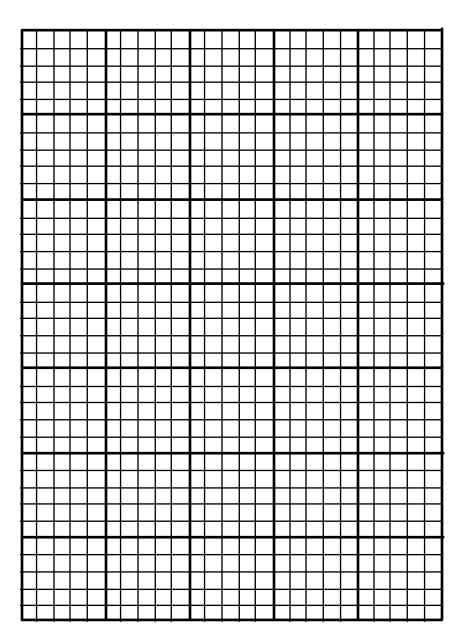
Each season the angle of the noon sun changes by 23 ½°. The data below represents the angle of the noon sun for an observer located at 41° N latitude. This location is similar to many places in New York State.

Describe Earth's revolution _____
_____
_____
How much is the Earth's axis tilted by? _____
What type of season happens when the direct ray of the sun strikes the equator? ___
_____
On what date does the sun's direct ray strike 23 ½ ° North latitude? _____
How many degrees does the noon sun change from the first day of summer to the first day of winter? _____

Date	Altitude of the Noon Sun for 41 °N	Date	Altitude of the Noon Sun for 41 °N
12/21	25.5	7/21	69.3
1/21	29.1	8/21	60.8
2/21	38.3	9/21	49.0
3/21	49.0	10/21	38.0
4/21	61.2	11/21	28.9
5/21	69.4	12/21	25.5
6/21	72.5		

Create a line graph from the data table on the Graph Paper on the back.
• create a uniform scale for Date on the x - axis (2 points)
• label the x - axis with both a label and a unit. (2 points)
• create a uniform scale for Angel of the noon Sun on the y axis. (2 points)
• label the y - axis with both a label and a unit. (2 points)
• plot all thirteen points on your graph (2 points)
• connect the points to draw your line (1 point)
• put an appropriate title on top of your graph. (1 point)

Range	12	
Boxes	25	
Divide	0.48	
Round up	0.5	

Answer the questions below in Complete Sentences (2 points each)

1) From the first day of winter to the first day of summer, what happens to the angle of the noon sun?

2) From the first day of summer until the first day of winter, what happens to the angle of the noon sun?

3) If the same data was collected for a location at 30° North latitude (like Florida) what would happen to the angles for the noon sun?

4) How much does the angle of the noon sun change each season?

5) Explain why we have a leap year every four years.