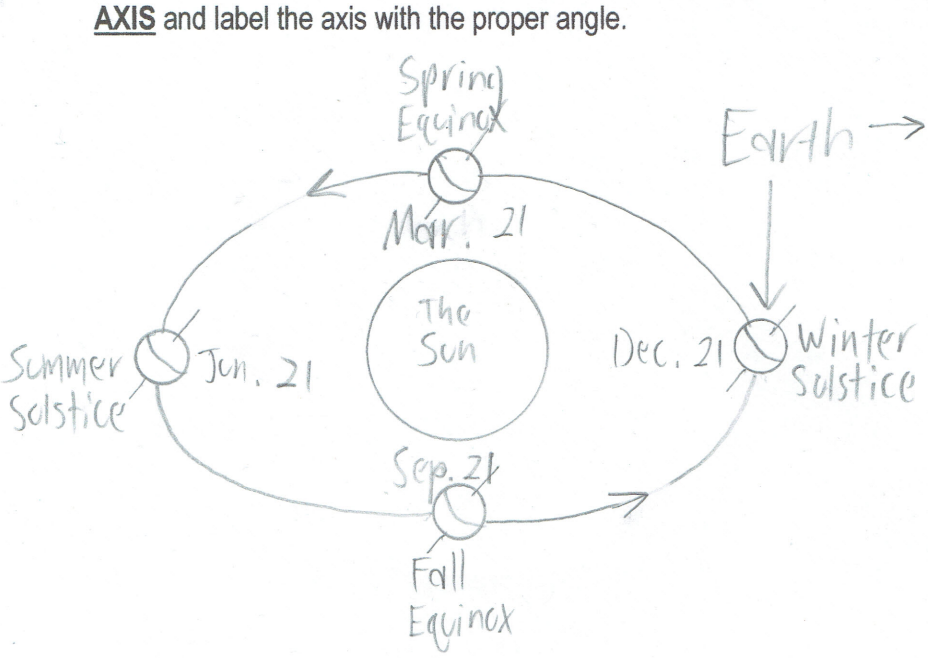
EDUCATIONAL ASSIGNMENT for JOSEPH JOHN WUNDERLICH for 11th grade

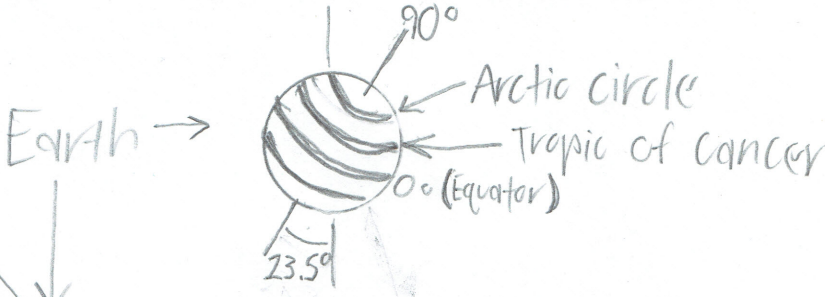
This assignment covers the following Educational Objectives (Subjects marked with a "■" are the main subject, and those marked with an "□" are secondary subjects):

- ■ Geometry
- ■ Physics

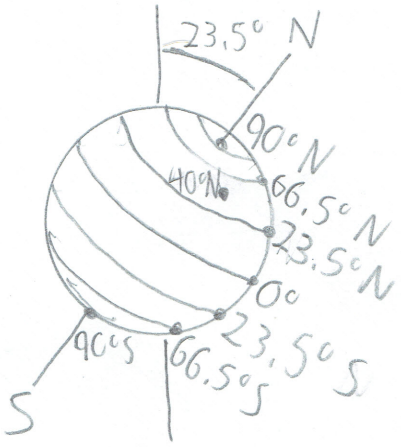
Solve the following problems. Use a pencil.

1. Review what you have learned about **SOLAR GEOMETRY** and draw a picture of the **EARTH ORBITING THE SUN** with four locations of the earth shown (Summer, Fall, Winter, and Spring). Draw each earth with the **PROPER TILTED AXIS** and label the axis with the proper angle.





2. Review what you have learned about **SOLAR GEOMETRY** and draw a picture of the earth, with the **PROPER TILTED AXIS**, and draw each of the following **LATITUDE LINES** on the Earth: 90 degrees North, 66.5 degrees North, 23.5 degrees North, 0 degrees, 23.5 degrees South, 66.5 degrees South, and 90 degrees South.

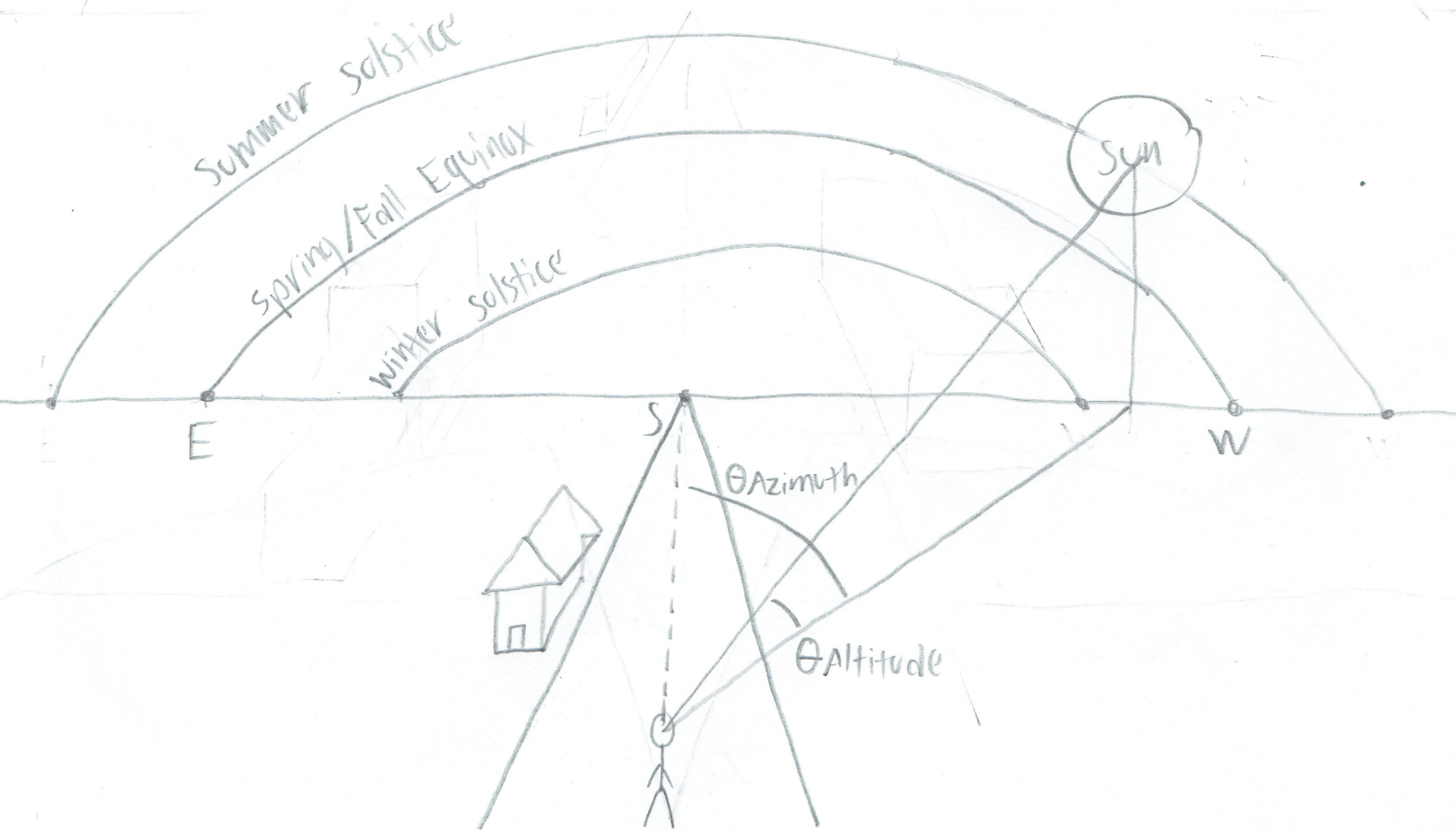


3. Approximately what **LATITUDE** do we live at.

40° N

4. Review what you have learned about **SOLAR GEOMETRY** and:
   a. Sketch a **ONE-POINT PERSPECTIVE** of a view of a road vanishing in the distant South direction. Assume you are on the Earth at approximately our home Latitude. Add some trees, and maybe buildings in your picture.
   b. On this picture, draw three curved lines showing approximately where the sun rises and sets (**SOLAR PATHS**). The first curve is for the Winter Solstice, the second curve is for the Vernal and Autumnal Equinoxes, and the third curve is for the Summer Solstice.
   c. Draw a picture of the Sun at approximately late-afternoon on the Summer Solstice and draw a dotted line to the sun from where you are standing on the road.
   d. Draw more dotted lines and indicate angles on the picture to show the **AZIMUTH ANGLE** and **ALTITUDE ANGLE** of the sun at the location you drew in part c.

(Notice: This is a distorted field of view)



5. Review what you have learned about **SOLAR GEOMETRY** and state **WHY IT IS COLDER IN THE WINTER WHERE WE LIVE**.

During our winter the sun shines more toward the Southern hemisphere, heating up the lower parts of the Earth. while our country faces away from the sun.