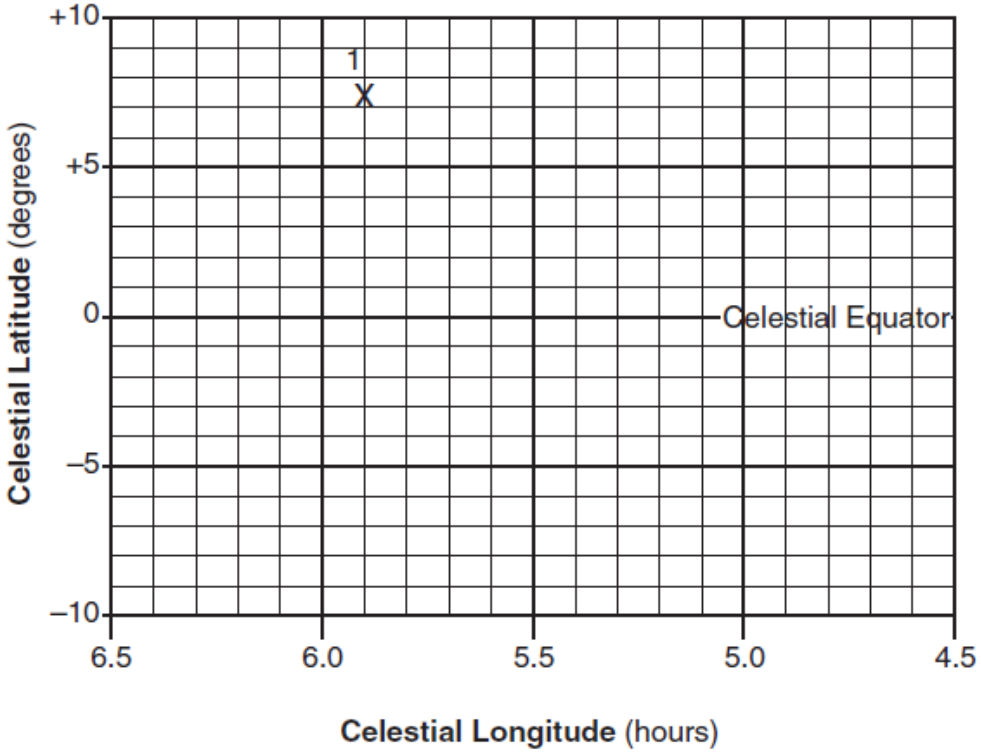
MIDTERM PART II REVIEW #1

Base your answers to questions 1-4 on your knowledge of Earth science and on the table below, which lists the seven brightest stars, numbered 1 through 7, in the constellation Orion. This constellation can be seen in the winter sky by an observer in New York State. The table shows the celestial coordinates for the seven numbered stars of Orion.

1. On the grid provided, graph the data shown in the table by following the steps below.
   a Mark with an X, the position of *each* of the seven stars. Write the number of the plotted star beside each X. The first star has been plotted for you.
   b Show the apparent shape of Orion by connecting the Xs in the following order:
   5 – 1 – 2 – 7 – 3 – 4 – 5 – 6 – 7

Location of the Seven Brightest Stars in Orion		
Star Number	**Celestial Longitude** (measured in hours)	**Celestial Latitude** (measured in degrees)
1	5.9	+7.4
2	5.4	+6.3
3	5.2	–8.2
4	5.8	–9.7
5	5.7	–1.9
6	5.6	–1.2
7	5.5	–0.3

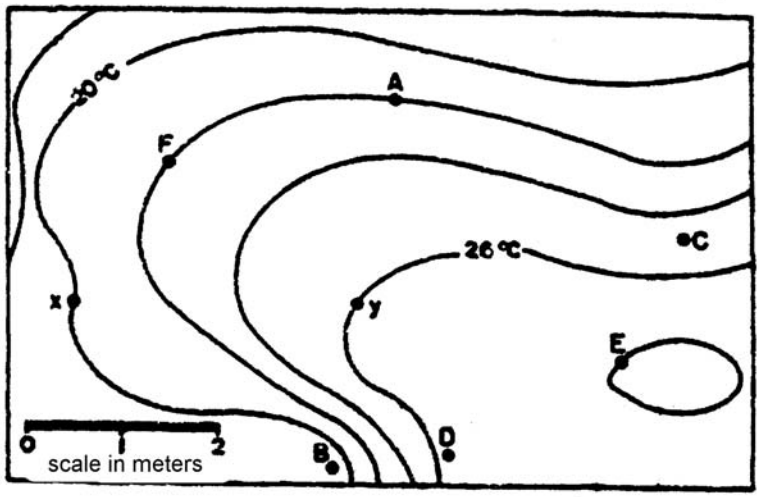


2. Star 1 plotted on the grid is the star *Betelgeuse*. Star 3 plotted on the grid is the star *Rigel*. How do the temperature and luminosity of *Betelgeuse* compare to the temperature and luminosity of *Rigel*?

3. The seven stars of the constellation Orion that were plotted are located within our galaxy. Name the galaxy in which the plotted stars of Orion are located.

4. State one reason why an observer in New York State can never observe the constellation Orion at midnight during July but can observe the constellation Orion at midnight during January.

Base your answers to questions 5 through 10 on the diagram below which represents a field map of the air near the ceiling of a room. The letters represent points in the field.



5. What kind of isolines are shown on this field? _____

6. Between which two points is the greatest temperature gradient? _____

7. Determine the temperature gradient between points x and y by following the steps below.

   a Write the equation for determining gradient.

   b Substitute in the appropriate data into the equation.

   c State the answer with the correct units. (Round the answer to the nearest tenths)

8. In a sentence, tell what happens to the temperature along the isoline from point A to point F.

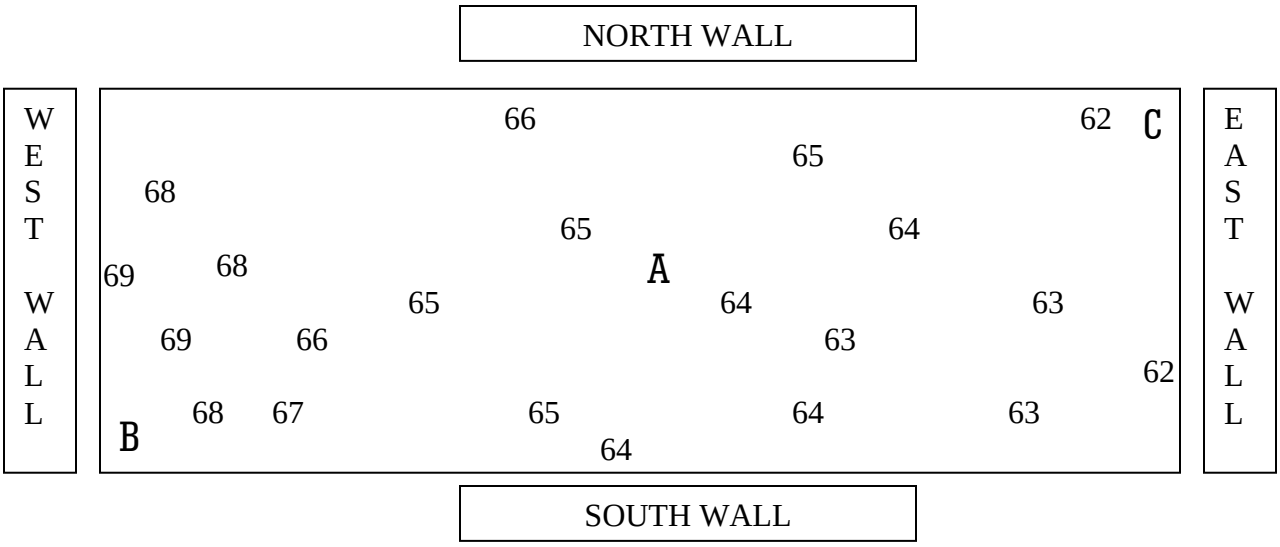
   _____

   _____

9. Nearest which lettered point is a heat source located? _____

10. Heat could flow from
    1 point A to point C
    2 point B to point D
    3 point D to point F
    4 point F to point E

Base your answers to questions 11-14 on the diagram below that represents temperature measurements taken at equal elevations within a room. Letters A, B, and C are reference points on the plane where the readings were taken.



11. Draw isolines to make a field map using an interval of 1.

12. Estimate the temperature at point A. _____

13. Estimate the temperature at point C. _____

14. If the measurements represented Fahrenheit air temperatures, and the distance between the east and west wall is 12 meters, determine the approximate temperature gradient.

Write the formula, substitute the data, and solve with correct units. (Round the answer to the nearest tenths)