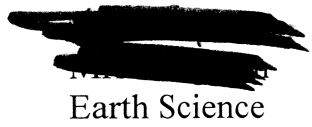


Name Key
 Date _____

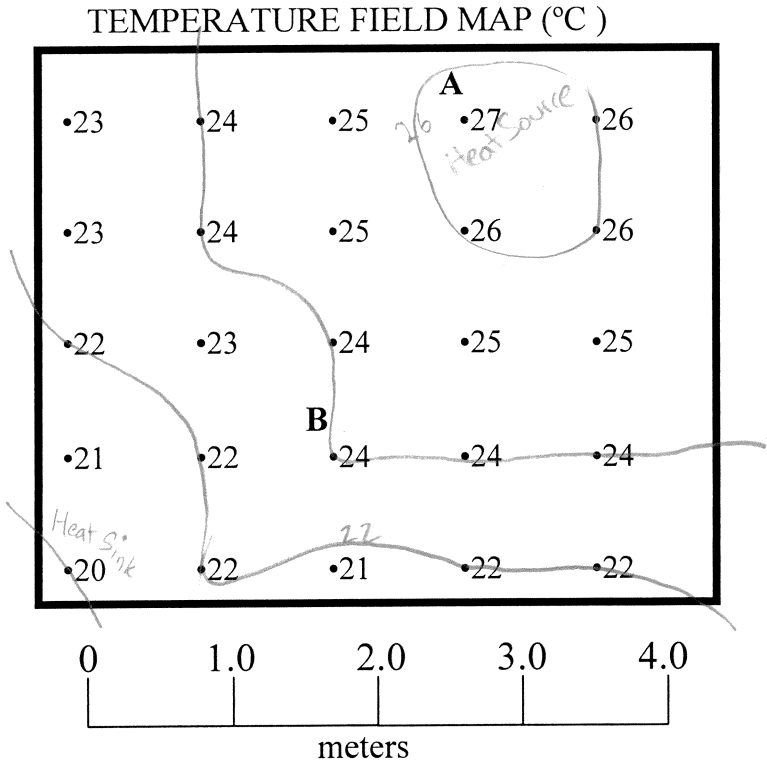
Do Now / H.W.



Earth Science

Objective: How do you calculate GRADIENT on a field map?

Base your answer to questions 1 to 7 on the temperature field map below. The map shows measurements (in °C) that were made in a temperature field and recorded as shown. The dots represent the exact location of the measurements. A and B are locations within the field.



1. On the temperature field map above, draw the 20°C, 22°C, 24°C and 26°C isotherms.
2. Label the Heat Source (where the heat is coming from) on the field map above.
3. Label the Heat Sink (where the heat is being lost) on the field map above.
4. What is the temperature at point A? 27°C
5. What is the temperature at point B? 24°C
6. Calculate the distance from A to B on the field map above (use the map scale). 2.4 m
7. Calculate the temperature gradient between locations A and B on the temperature field map.

a. Write the equation for Gradient

$$\frac{\text{change in field value}}{\text{distance}}$$

b. Substitute data from the map into the equation:

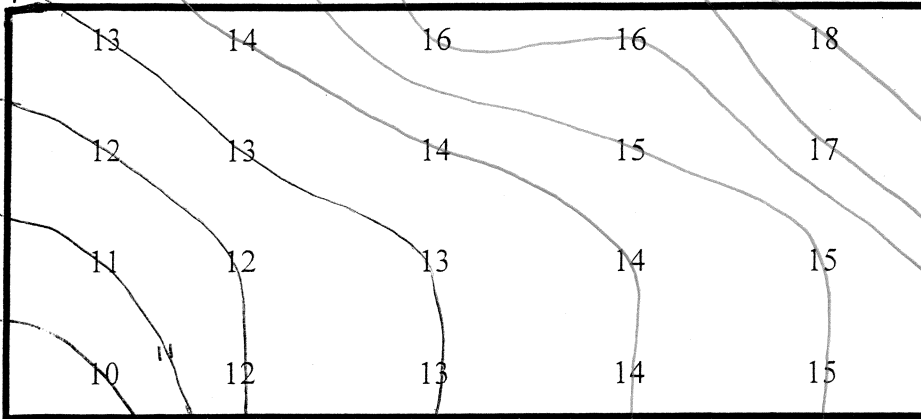
$$\frac{27^\circ\text{C} - 24^\circ\text{C}}{2.4 \text{ m}}$$

c. Calculate gradient and label it with the appropriate units. Round to the tenth.

$$\frac{3^\circ\text{C}}{2.4 \text{ m}} = \boxed{1.25^\circ\text{C}/\text{m}}$$

Use a pencil to draw isolines on the field maps below at an interval of ONE. Work carefully and write in all the numbers before connecting!!! 10,11,12,13 have been drawn for you.

MAP 1



Define ISOLINE:

Line connecting
points of equal value.

Rules for Drawing Isolines:

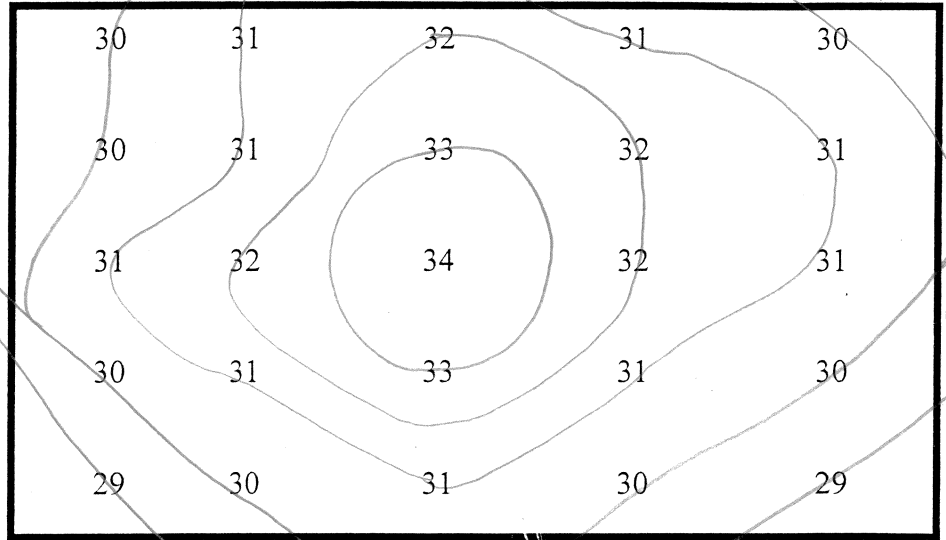
- smooth, curving lines
- end off the map or connect back to itself

- numbers on one side of line must be greater; numbers on the other side must be less.

Answer the questions below based on the field maps you drew above. RULES for drawing ISOLINES.

MAP 2

Draw isolines at an interval of ONE: 29, 30, 31...



1. Do isolines ever touch or cross each other? they never touch or cross
2. Do isolines make sharp angles or smooth, gentle curves? smooth gentle curves
3. What do ALL POINTS on an isoline have in common? All have same value on same line
4. Do isolines ever end in the middle of a field map? NO
5. Can the interval from one isoline to the next on a single map ever change? No, interval is the same on a single map
6. Do isolines tend to make parallel curves? yes
7. Does every isoline have one side where the numbers are higher, and another side where the numbers are lower?
yes