Isoline Practice
Unit 2 – Measurements and Dimensions in Earth Science

Name: _____

Date: _____ Period: _____

W.S. – Isoline Practice

Direction - Use the following rules to help construct isolines.   **(Notes)**   Isotherm:

① Isolines are lines that connect points of equal value ———————→ Isobar:
② All points on the same isoline must have the same value
③ Isolines never cross, touch or split   Contour:
④ Isolines are always closed curves even though the map might only show a portion of it (the rest is off the map)
⑤ Isolines are gentle curved lines that do not have sharp corners
⑥ Isolines usually are drawn in the same general direction as nearby isolines.   **(pattern)** < Parallel trace
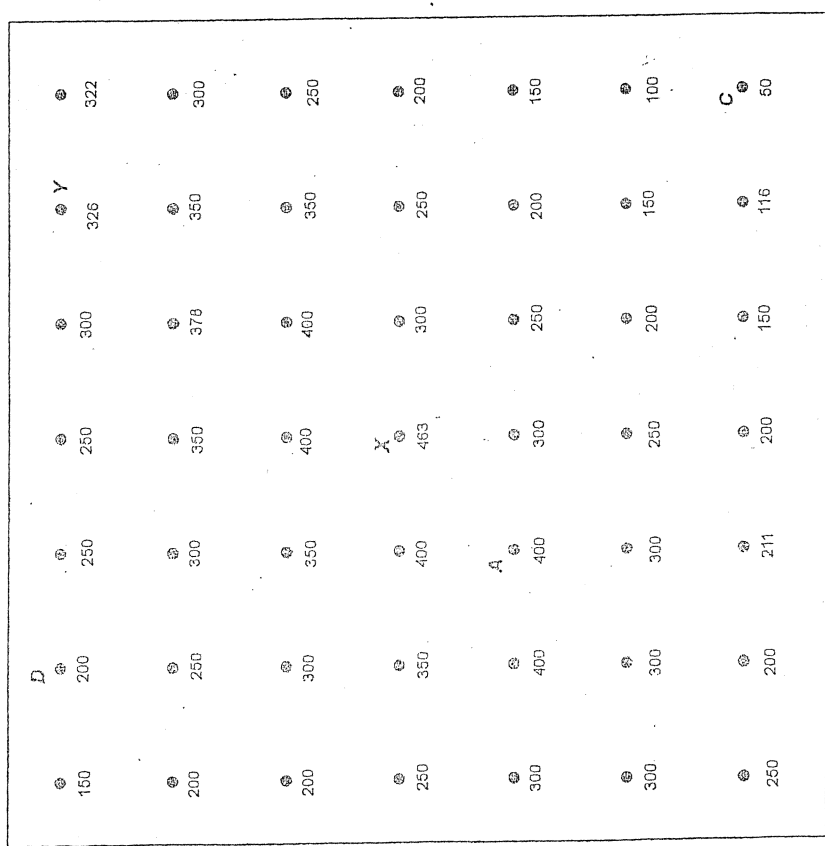   or
                                                                                                                    Concentric Circles

Practice

Draw the 10, 15, 20 and 25

9	9	11	17 B	20	22
10	13	16	20	23	25
10	15 A	18	21	23	25
9	15	17	20	22	25
8	14	14	16	20	22

Draw the 20, 22, 24, 26, and 28

A 20	21	22	24	B 28
21	22	24	25	26
20	22	25	25	25
18	21	22	24	25
19	21	23	23	24

Map 1 - Draw isolines for the following intervals: 10, 11, 12, 13, 14, 15, 16, 17 & 18.

13	15	16	16	18
12	13	14	15	17
11	12	13	14	15
10	12	13	15	16

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Contour Lines Practice #1

Draw in contour lines at the following elevations

450, 400, 350, 300, 250, 200, 150, 100, 50

(Concentric Circle
trend)

Contour Lines Practice #2

Draw in contour lines at the following elevations:

250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750

9. Base your answer to the following question on "the field map below, which shows an area of a state park where an underground gasoline tank leaked and contaminated the groundwater. Groundwater-monitoring wells were installed to determine the extent of the contamination. The concentration of contaminants in parts per million (ppm) in each of the wells is indicated on the map.

Area of State Park
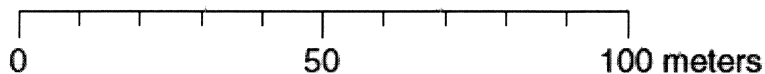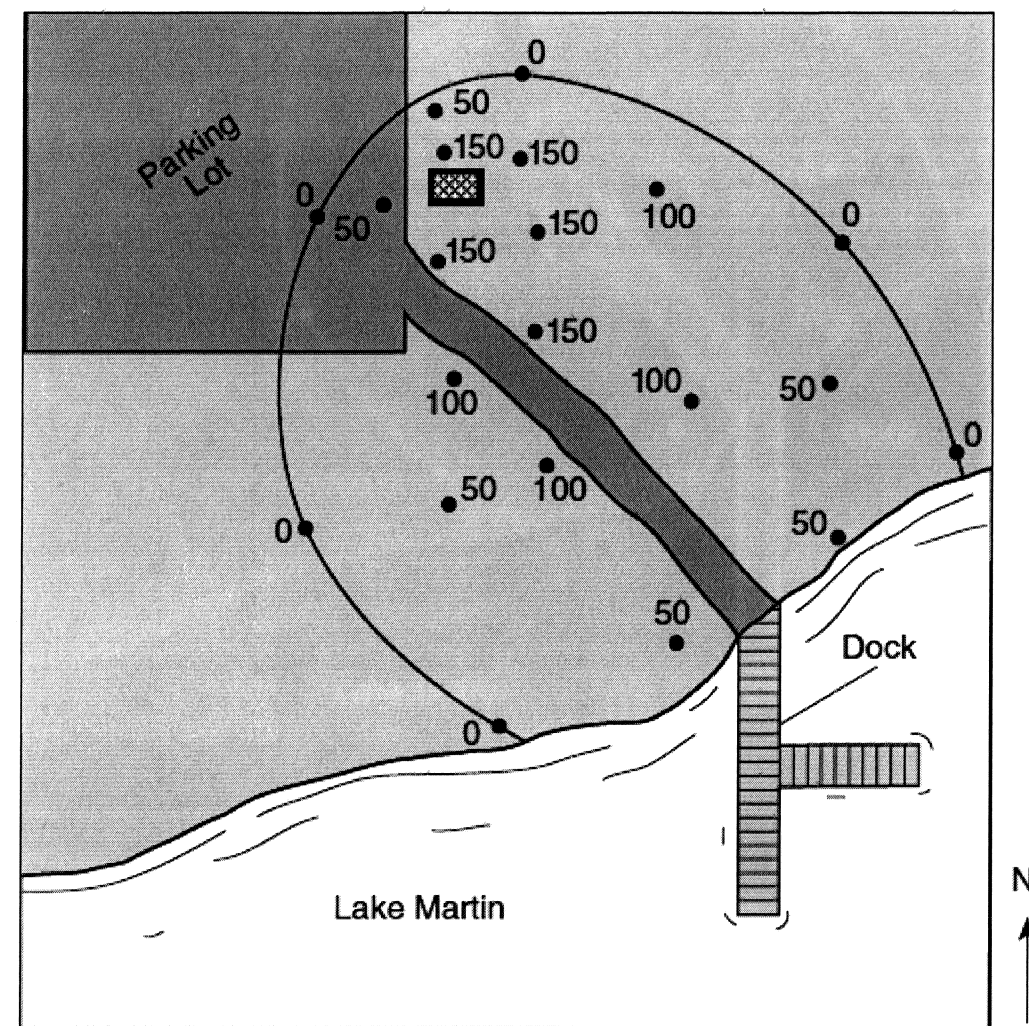
Key	
●	Groundwater-monitoring well
▧	Underground gasoline tank

"

On the field map above, draw the 50-ppm, 100-ppm, and 150-ppm isolines. The 0-ppm isoline has been drawn for you.

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ISOLINE REGENTS PRACTICE

1. Base your answer to the following question on
   the topographic map below and on your knowledge of Earth science. Some contour lines have been
   drawn. Line *AB* is a reference line on the map.

Draw the 60 + 70 meter Contours.

Contour interval = 10 meters
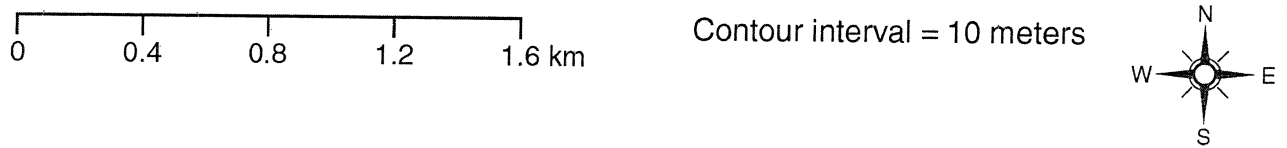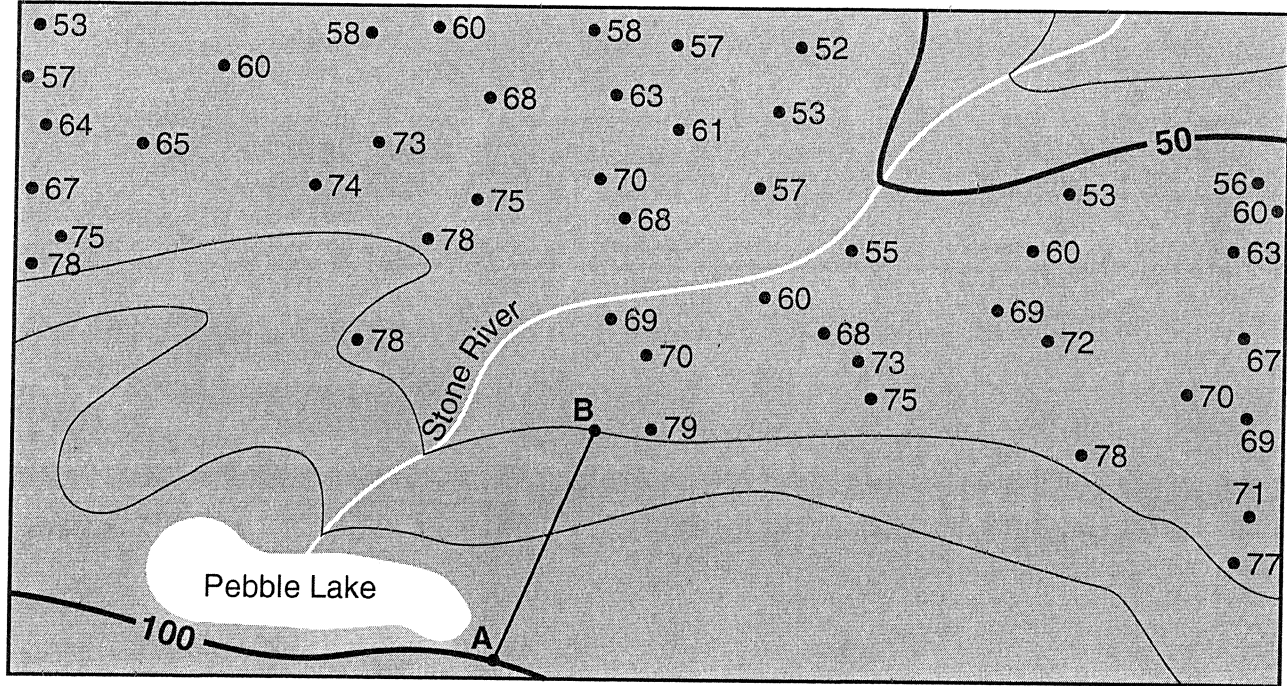
On the below that shows the total inches of snowfall received at various locations for the 1984-1985
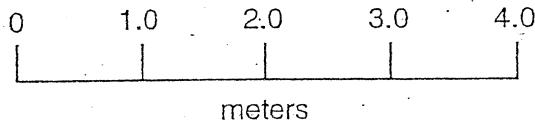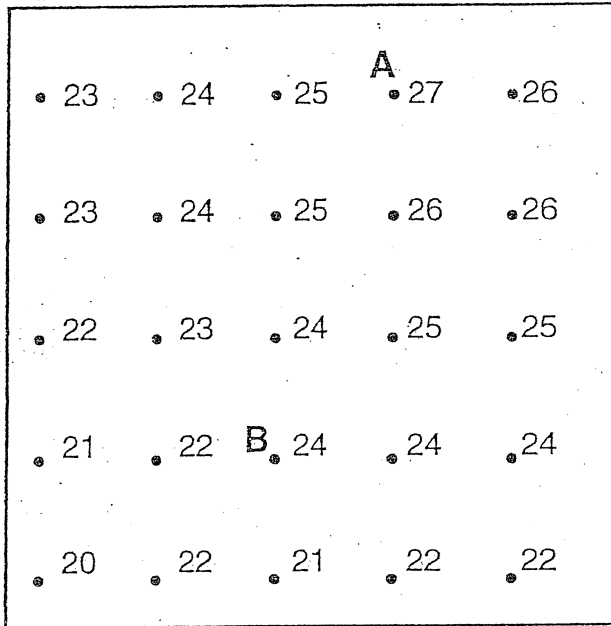winter season, draw the 120-inch, 140, and 160-inch isoline.

1984–1985 Winter Season
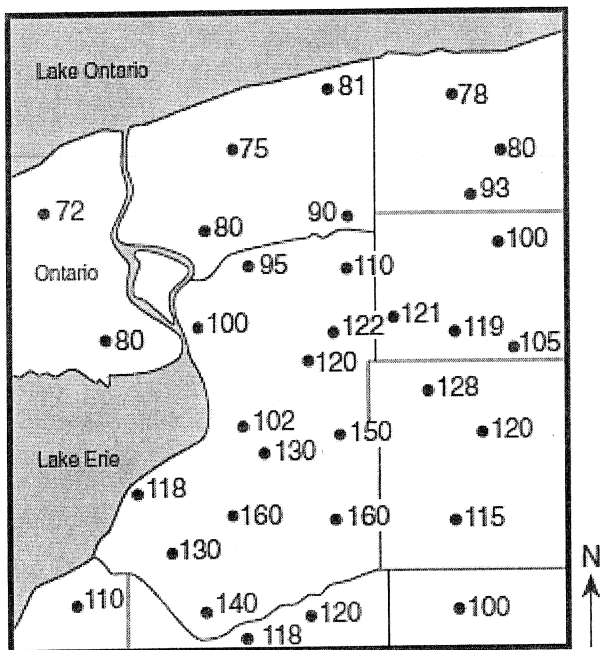
Gradient = _____

Base your answers to questions 17 and 18 on the temperature field map below. The map shows 25 measurements (in °C) that were made in a temperature field and recorded as shown. The dots represent the exact locations of the measurements. A and B are locations within the field.

Temperature Field Map (°C)

```
          A
• 23   • 24   • 25   • 27   • 26

• 23   • 24   • 25   • 26   • 26

• 22   • 23   • 24   • 25   • 25

• 21   • 22  B• 24  • 24   • 24

• 20   • 22   • 21   • 22   • 22
```

```
0      1.0     2.0     3.0     4.0
|___|___|___|___|___|___|___|___|
              meters
```

17. On the temperature field map above, draw three isotherms: the 23°C isotherm, the 24°C isotherm, and the 25°C isotherm.

18. Calculate the temperature gradient between locations A and B on the temperature field map, following the directions below.

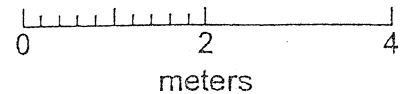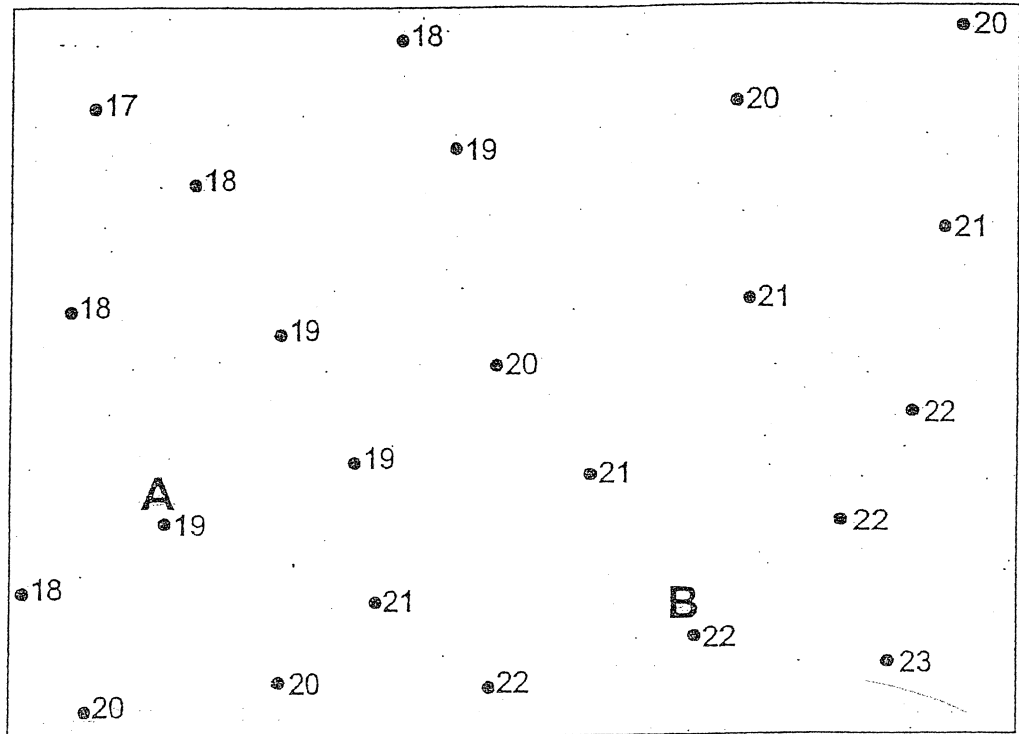   a. Write the equation for gradient.

   b. Substitute data from the map into the equation.

   c. Calculate the gradient and label it with the proper units.

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Base your answers to questions 19 through 21 on the temperature field map below. The map shows temperature readings (°C) recorded by students in a science classroom. The readings were taken at the same time at floor level. Temperature readings for points A and B are labeled on the map.

Temperature Field Map (°C)


```
                    •18                                    •20
      •17                              •20
            •18                  •19
                                                              •21

      •18                                        •21
            •19
                      •20
                                                        •22
            •19              •21
   A
    •19                                            •22

 •18              B
         •21            •22
                            •23
      •20        •22
•20
```

```
|__|__|__|__|__|__|__|__|__|
0           2           4
         meters
```

19. On the temperature field map provided, use solid lines to draw the 18°C, 20°C, and 22°C isotherms. Isotherms must extend to the boundry of the map. Label each isotherm to indicate its temperature.

20. Determine the temperature gradient from point A to point B by following the directions below.

    a. Write the equation used to determine the gradient.

    b. Substitute values from the field map into the equation.

    c. Solve the equation and label the answer with the proper units.

21. State temperature of point A in degrees Fahrenheit (°F). _____

Use ESRT pg. 13

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