

10. If a person knows the sun time on the Prime Meridian and the local sun time (their location), what can be determined?

longitude

11. What is the longitude of our location?

75° W

12. If a ship is traveling West in the Atlantic Ocean, how will time change?

earlier in time

13. If an airplane is traveling East in the Pacific Ocean, how will time change?

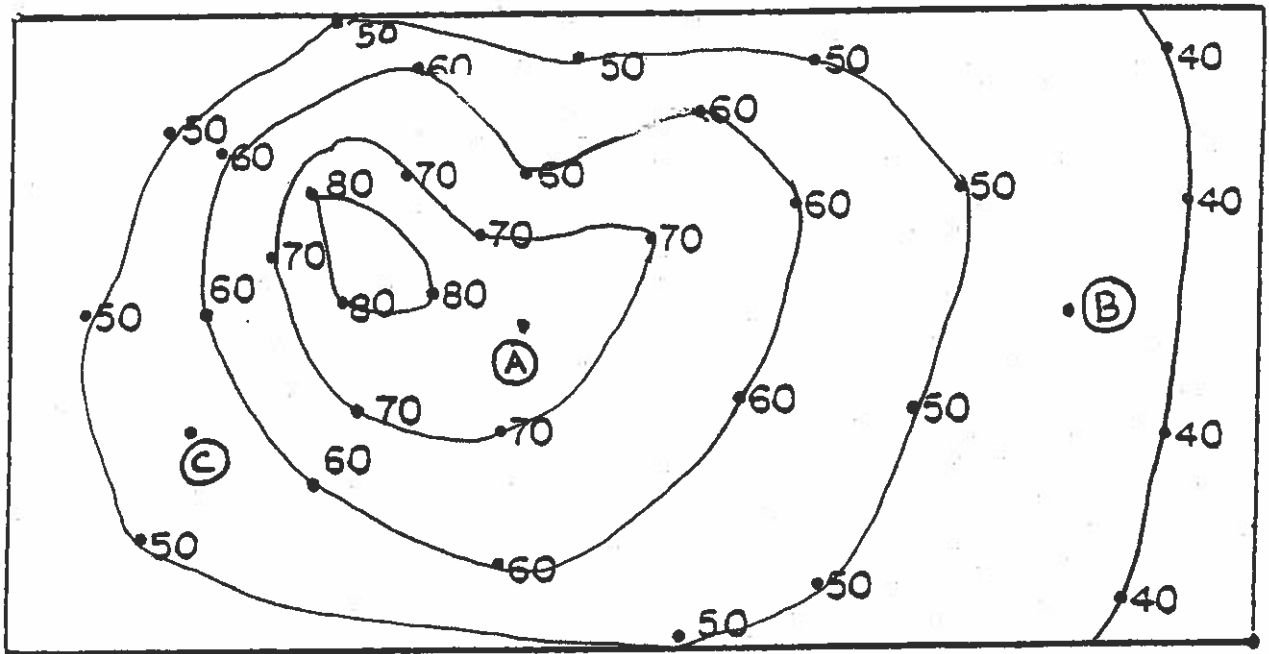
later in time

V. **Fields** - a region of space or an area
that has a measurable value of a
given property at every point

A. **Isolines** -

lines on a field map connecting
all points of the same value

B. The diagram below shows an elevation field map of a geographical region; the elevation is in feet (above sea level). Complete this field map by drawing elevation isolines for 40, 50, 60, 70 and 80 feet.



1. What is the approximate elevation of point

A 75 feet (between 71-79 feet)

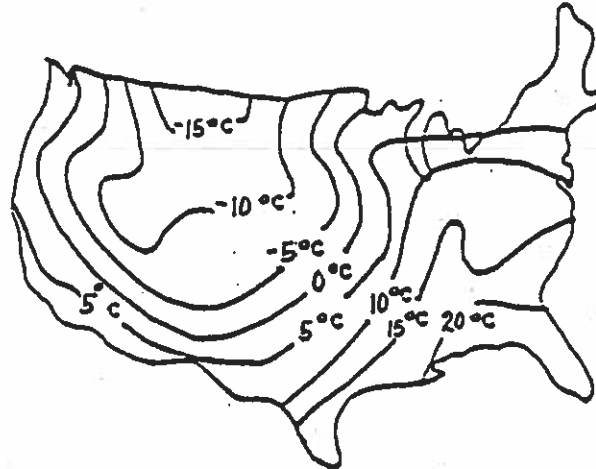
B 45 feet (" 41-49 feet)

C 55 feet (" 51-59 feet)

2. Isolines that show elevation are called contour lines.

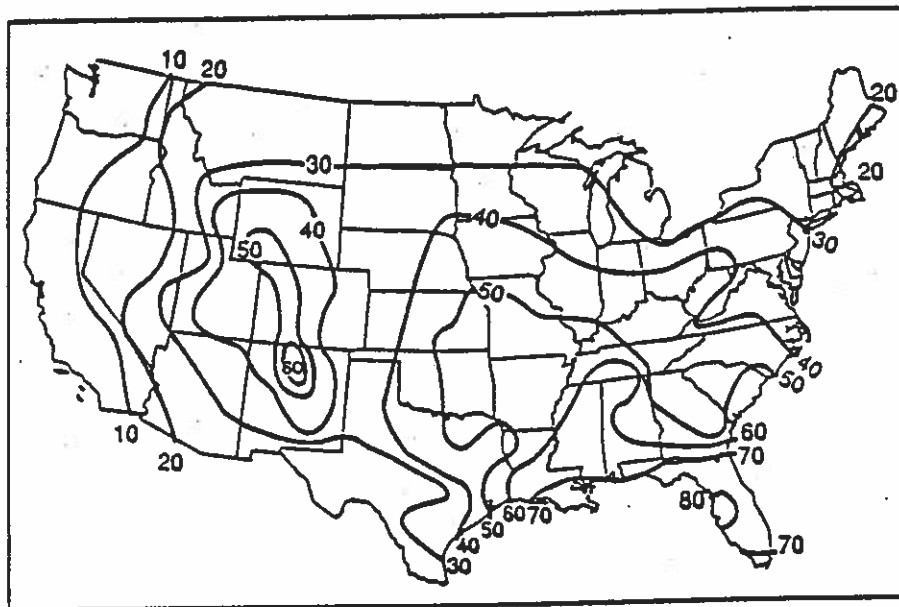
contour lines reveal the
shape of a landscape

C. The field map below shows weather data plotted for a January morning.



1. What measurable property is shown on this map? temperature
2. Based on this property, the isolines on this map are called isotherms (thermometer)
3. What is the approximate measurement of this property for New York State? 5°C

D. The field map below shows the average yearly number of thunderstorms in the United States.



1. Approximately how many thunderstorms occur each year in:
 - a. Albany, New York - 21-29
 - b. Los Angeles, California - less than 10
 - c. New Orleans, Louisiana - 71-79

VI. Topographic Maps

... are maps of a elevation field

A. Topographic Maps show the elevation of the land by using contour lines, and show other natural and man-made features by using symbols.

B. Contour Line - isolines on a map connecting points of the same (equal) elevation

Elevation -

distance in feet or meters above sea level (0 feet or meters)

C. Contour interval -

difference in elevation between 2 consecutive contour lines

D. Index Contour Line - heavy or dark contour line that marks major increments or changes on a contour map (usually 100 feet or meters)

E. Depression Contour Line - Special contour lines used to show a hole or crater on Earth's surface. These lines are drawn like contour lines but are marked on the inside. (hachure)

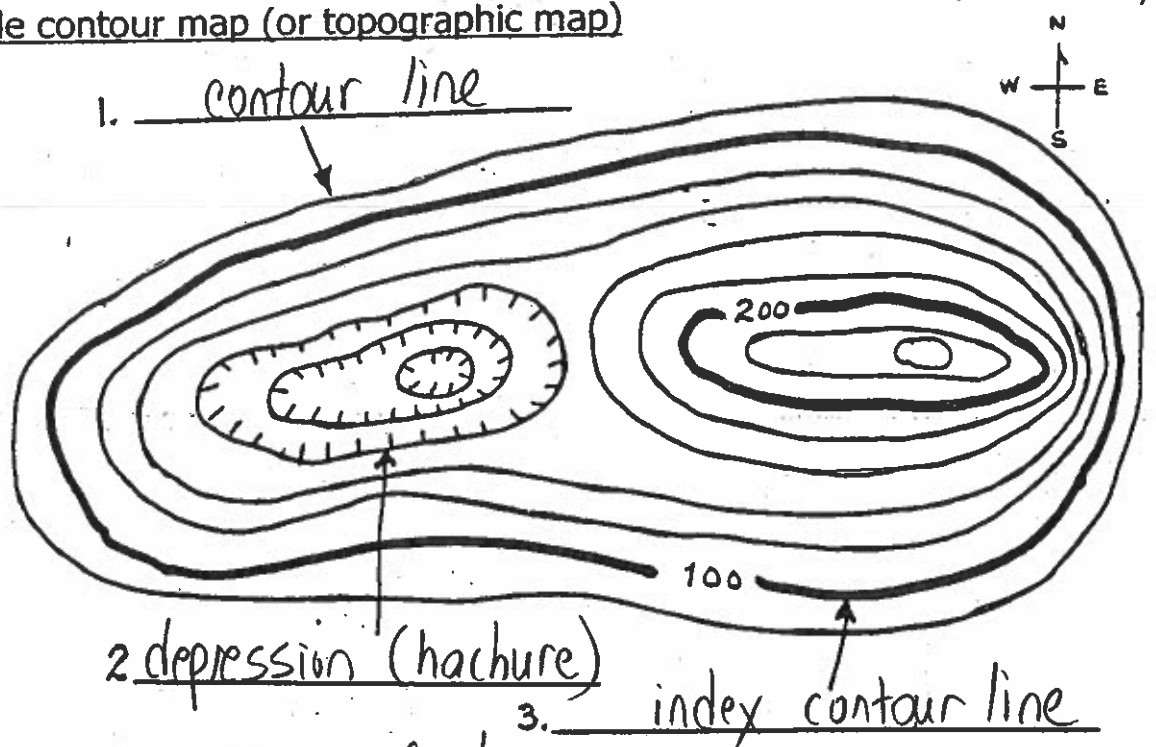


F. Bench Mark (B.M.) -

official marker in the ground that indicates "exact" elevation above sea level

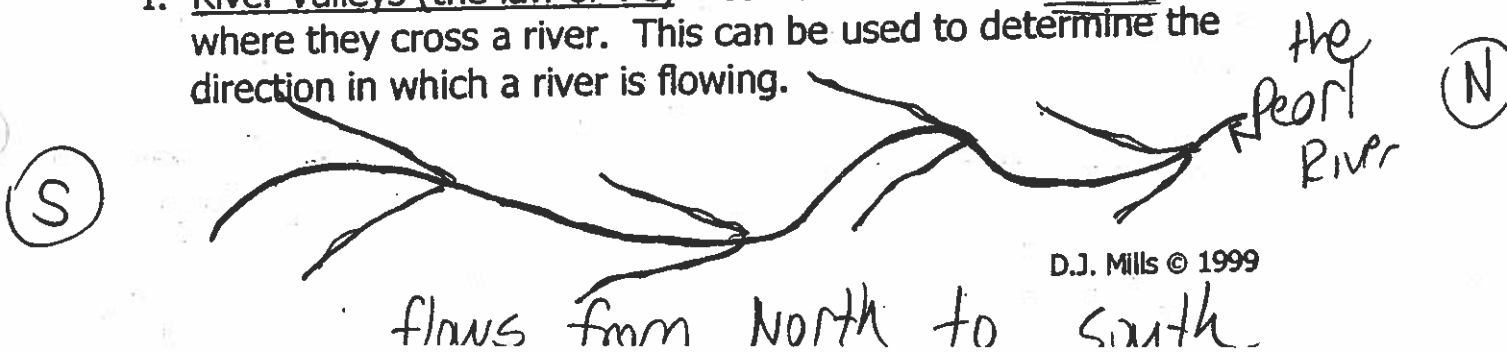
G. Spot Elevations - are the elevations of such places as road intersections, hilltops, lake surfaces and other points of special interest. These points are located on the map by a small cross (+), unless the location is obvious, such as certain road intersections or hilltops.

H. A simple contour map (or topographic map)



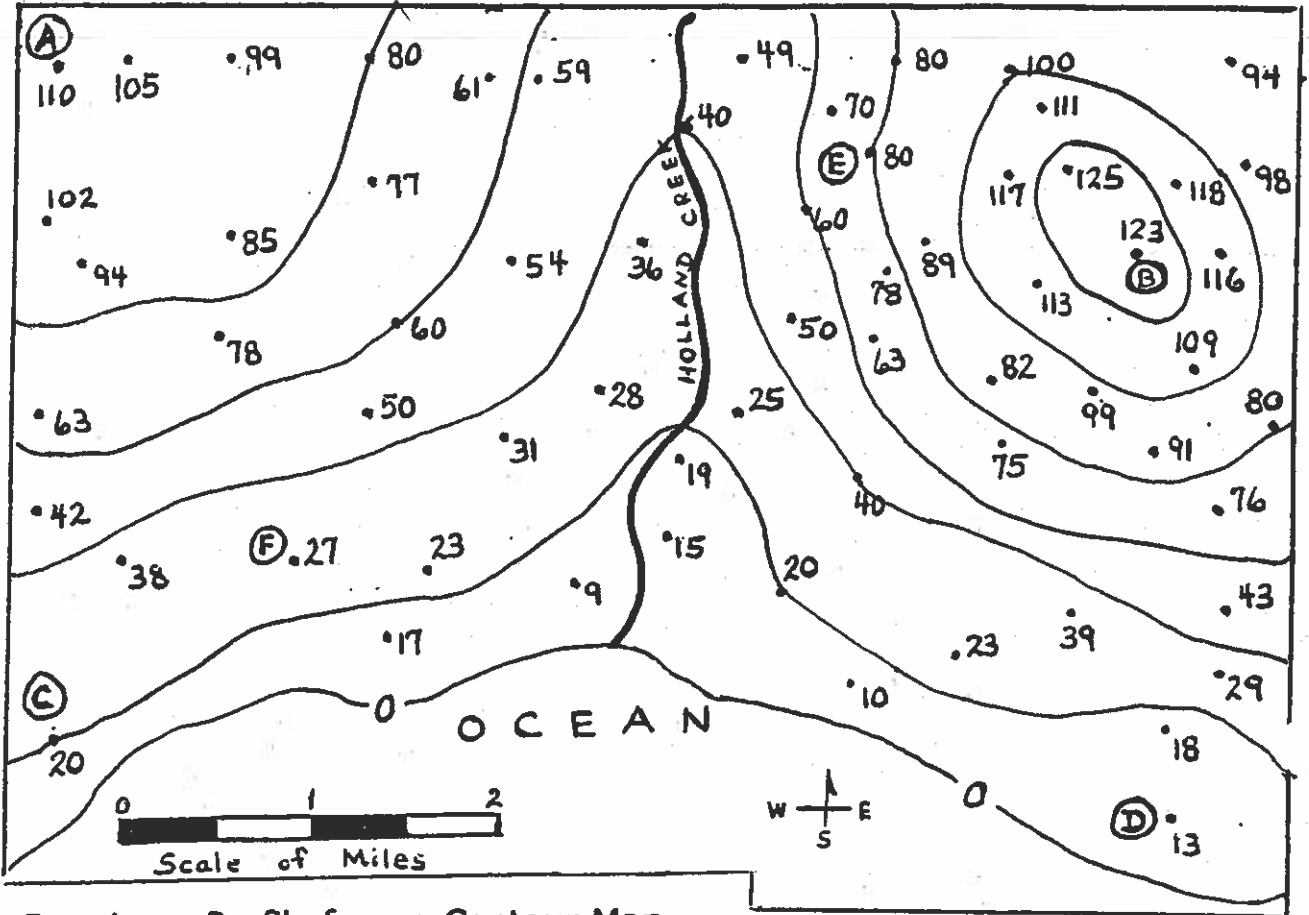
4. Contour Interval - 20 feet
5. Highest possible elevation (of the hilltop)- 259 feet
6. Which is the steepest side of the hill: north, south, (east) or west?
7. How do contour lines show a steeper slope?
lines are closer together
8. What three (3) basic features of a landform do contour lines show?
 - a. elevation above sea level
 - b. steepness (gradient)
 - c. shape

I. River Valleys (the law of V's) - contour lines bend upstream where they cross a river. This can be used to determine the direction in which a river is flowing.

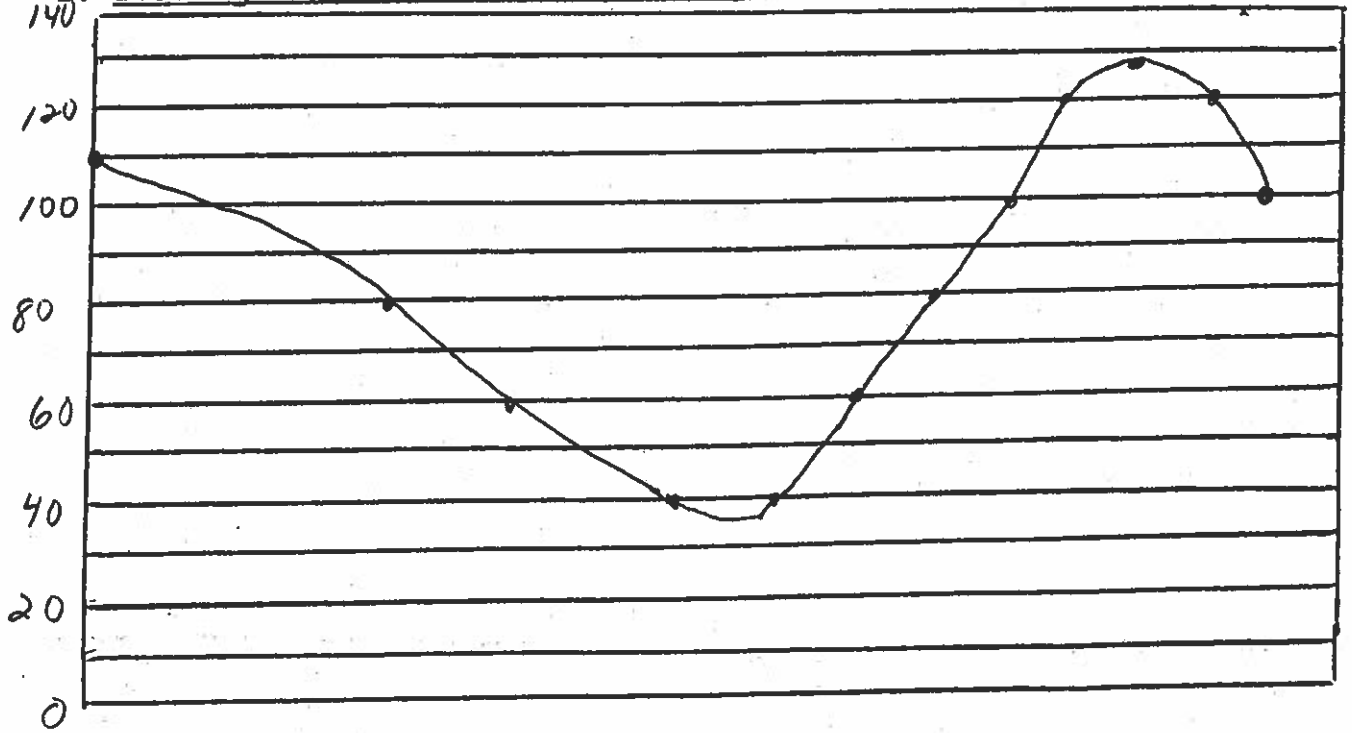


VIII. Topographic Map Skills

A. Drawing Contour Lines on a Field Map – draw contour lines for 20, 40, 60, 80, 100, 120 feet



B. Drawing a Profile from a Contour Map



c. Gradient- rate at which elevation
changes from place to place

1. Formula: $\text{gradient} = \frac{\text{change in field value}}{\text{distance}}$

2. Calculating Gradient

Use the elevation field map that you drew contour lines on (which is on the previous page) to calculate the gradient between:

a. point A and point C

$$\text{Gradient} = \frac{110 - 20}{3.5 \text{ miles}}$$

$$\frac{90}{3.5} = 25.7 \text{ ft/mile}$$

Reference Table page =
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b. point B and point D

$$\frac{123 - 13}{3 \text{ miles}} = \frac{110}{3} = 36.7 \text{ ft/mile}$$

c. point B and point E

$$\frac{123 - 80}{1.5} = \frac{43}{1.5} = 28.7 \text{ ft/mile}$$

d. point F and point C

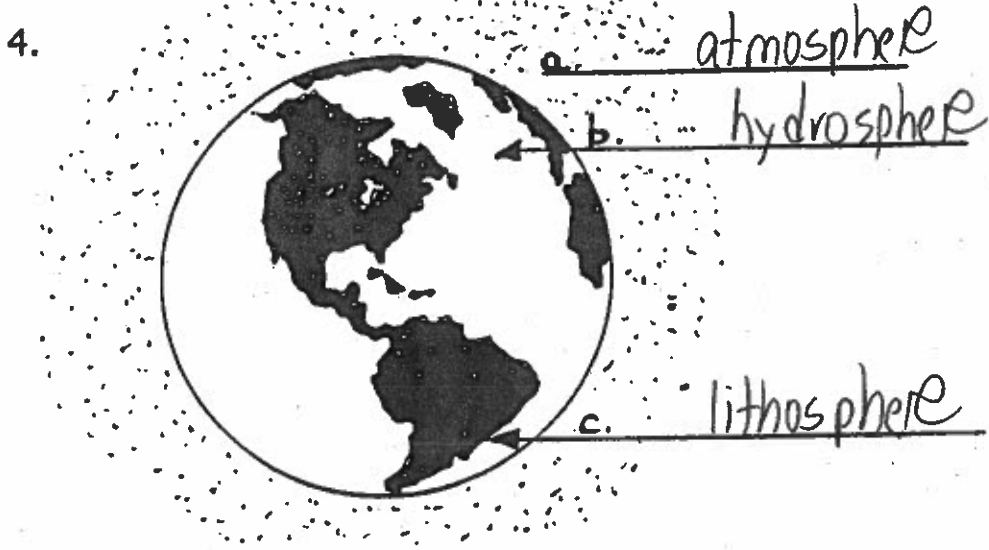
$$\frac{27 - 20}{1.5} = \frac{7}{1.5} = 4.7 \text{ ft/mile}$$

IX. Parts of Earth

A. The three "spheres" of outer Earth

1. atmosphere - the shell of gases that atmos air surrounds Earth.
2. hydrosphere - the waters of Earth; its H₂O hydro oceans, seas, lakes and rivers.
3. lithosphere - the dense, solid outer shell of litho land Earth composed of rock.

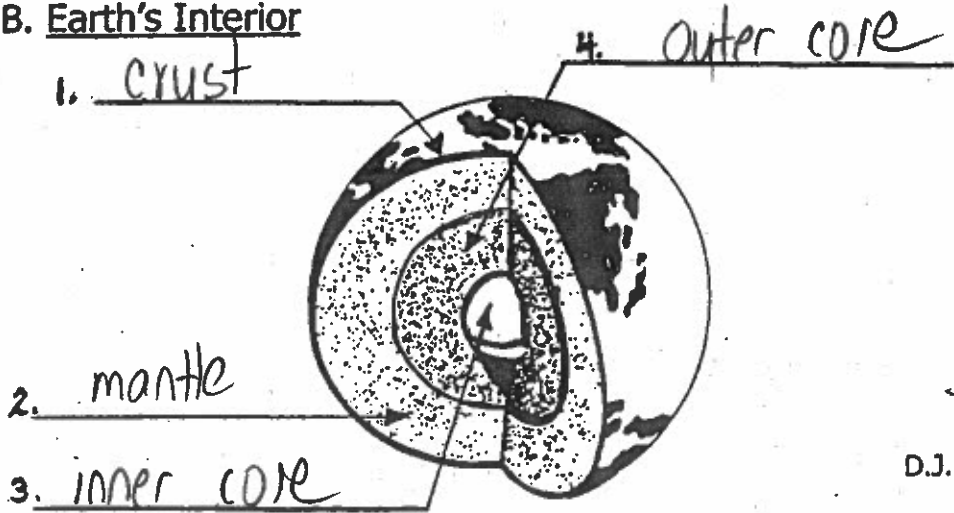
29 % of Earth's surface is covered by land.



5. Which sphere of Earth is:

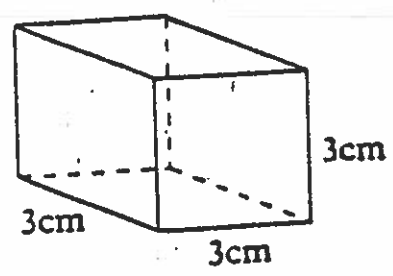
- a. most dense? lithosphere
- b. least dense? atmosphere

B. Earth's Interior

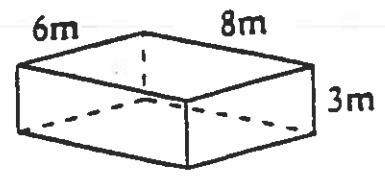


} ESRT Pg 10

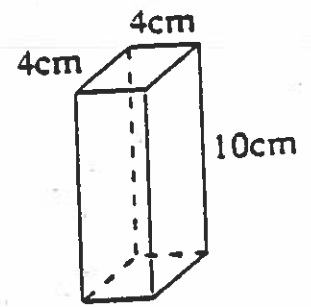
Determine the volume of the objects in each illustration:



27.0 cm³

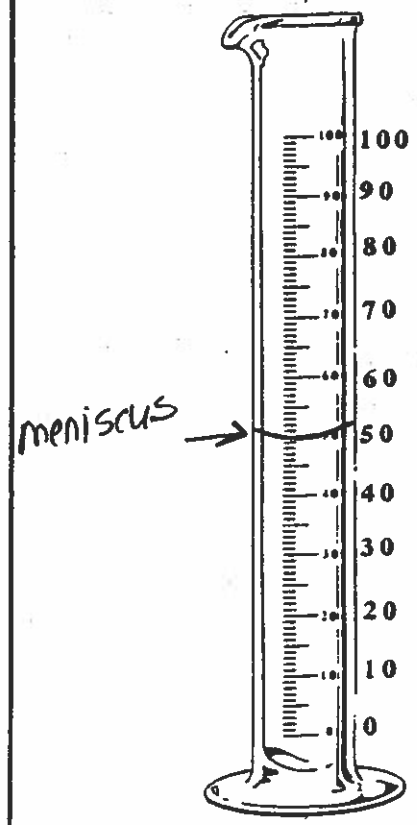


144.0 m³

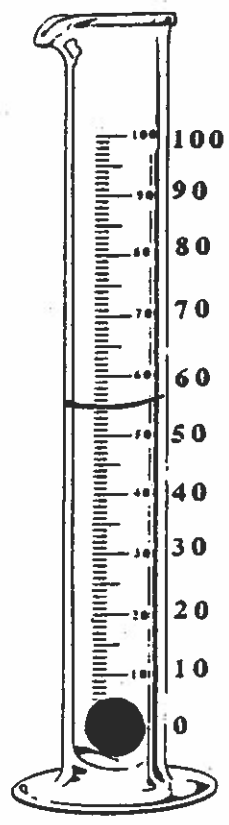


160.0 cm³

Volume by Displacement



Volume of Water
50.0 ml



Volume of Water and Marble
55.0 ml



Volume of Marble
5.0 ml

E. Mass - amount of matter in an object

Determining mass: use a balance

Record mass in grams (g) or

Kilograms (kg)

Volume (or "three-dimensional measurement" sometimes referred to as the "size" of an object) - cm³ or mL

the amount of space occupied by an object

1.0 g/mL - density of liquid water @ 4°C

ice floats in water so it is less dense than liquid water



.9 density