Name _____

Period _____

Quick Tutorial on Degrees, Minutes, and Seconds of Latitude and Longitude

A degree of latitude on the surface of the earth is about 70 miles long.   Reporting a position to the nearest degree, therefore, really just approximates a position to somewhere in an area of 4900 square miles. It would take a long time to search for a lifeboat in 4900 square miles of sea!

To more accurately locate positions on earth, a single degree (symbolized by °) is broken into 60 smaller pieces called minutes (symbolized by ') in the same way a hour of time is broken into 60 smaller minutes. And just like a minute of time is further broken into 60 seconds, a minute of latitude or longitude is broken in 60 seconds (symbolized by "). Each second is only about 100 feet long, so an accurate position to the nearest second of latitude and longitude would locate your position within an area about 3 times the size of this classroom!

- Three hours (that is: 3 hours, 0 minutes, and 0 seconds) can be written as 3hrs 00' 00"

- Three and a half hours (3 hrs and 30 minutes) would be written this way: 3hrs 30' 00"

- How would you write 5 and 3/4 hours?_____
  (*5hrs 45' 00"* is the answer!)

- 41 and a half degrees of latitude would be written 41°30' 00"

- 41 degrees and 5 and a half minutes would be written 41° 05' 30"

How would you report a position that is 41 and a half degrees north of the equator and 73 and 2/3 degrees west of the Prime Meridian?

_____

(*Lat. 41 30' 00" N   Long. 73 40' 00" W*   is the answer!)

You will use this new method of measuring on this lab.

READING THE **MOUNT KISCO QUADRANGLE** MAP:

NOTE: Read over all the information on the margins of the map. Some you will understand, some you won't. But read it anyway. Questions 1 - 10 are general questions about the map and can be answered by looking around the map. To answer the lettered questions (A-), refer to the places marked with the same letter on the map.

1. Run your finger along the highest latitude line on the map. Where is that line?

_____

2. Find the numbers that label that maxim latitude line (they are on the top right and left of the map) What is the latitude of the top of this map?

_____

3. What is the latitude of the bottom of the map?

_____

4. How many minutes of latitude are there between the top and bottom of the map?

_____

5. Trace your finger along the western edge of the map. You've just traced the line of maximum longitude on the map. Note that it is labeled at the top left and top right of the map. What is the maximum longitude of this map?

_____

6. What is the minimum longitude on this map?

_____

7. How many minutes of longitude are there between the eastern edge (right side) and western edge (left side) of this map?

_____

8. Notice that this map is called a "7.5 minute series" map (see the upper right hand corner). Why is it called that?

_____

9. This map has been revised several times since it was originally made. Read the margin information at the bottom of the map, and determine what the purple ink on this map indicates

_____

10. What is the magnetic declination here? _____degrees_____.(You may use a textbook from the counter near the door to refresh your memory of magnetic declination)

11. What is the contour interval of this map (how many feet of elevation between any 2 contour lines)? You can figure it out be finding the number of interval between labeled contours on the map, or you can find it written somewhere on the margin of the map.

_____

13. What are all the little black rectangles?

_____

14. Locate the position Lat 41° 11' 27"N by Long 73° 40' 42"W on your map. What familiar place have you located?

_____

Find the place(s) labeled "A" on the map and answer the following question:

A. What is the gradient of the stream between the 2 red dots?

Rise = _____(ft)   Run = _____(mi)

Gradient=

Refer to the place labeled "B" on your map, and answer the following:

B. What is the elevation of the lake at B?

_____

Is the stream at the east side of the lake an inlet or an outlet? (circle the correct answer)

Continue on, referring to the matching lettered places on your map to answer the rest of these questions:

C. What is the maximum elevation of the hill at C?

_____

D. What is the distance from the top of the hill at D1 to the top of the hill at D2?
   What compass direction would you follow to get from the top of the hill at D1 to the top of the hill at D2?

_____

   Describe what a hike from the top of the hill at D1 to the top of the hill at D2 would be like (how far would you travel? Describe the uphills and downhills you'd encounter along the way in terms of steepness and height)

_____
_____
_____
_____
_____
_____
_____
_____

E. What is the elevation of the pond at Fox Lane?

_____

F. What direction does the stream between the 2 ponds at F flow?

_____

   What is the gradient of the stream at F?

      Rise = _____   Run = _____

      Gradient=

G. What is the exact latitude and longitude of the + at G?

READING THE **POUND RIDGE QUADRANGLE** MAP
Interpretation of this map can be done for extra credit:

1. Where is the minimum latitude labeled? (2 places) _____

2. What is the minimum latitude of this map?   _____

3. Where is the minimum longitude labeled? (2 places)_____

4. What is the minimum longitude of this map?   _____

5. How did High Ridge (lat. 41o10'N, long. 73o30'30") change between 1960 and 1971?

_____

A. What is the compass bearing of the direction of flow of the stream at A? _____

B. What is the symbol for a swamp? (draw it!)

C. What might be the reason for the extremely straight shoreline at C? _____

_____

D. What is the elevation of the hill at D? _____

E. You must travel from the Rockrimmon Country Club (where you and Buffy have just played six sets!) to Sarles Corners (at the center of the map). Which Shad Road (the Upper or Lower) should you take to make the trip shorter?
_____

   How much shorter is the route you chose? _____

F. How would you describe the course of the Mianus River around F? _____

_____

_____

G. Woods and forests are colored green on these maps, while cleared land appears white. What do you suppose the dot/dashed line at G is? _____

_____

H. Describe the walk from H1 to H2. _____

_____

_____

  How far is the walk from H1 to H2. _____