MLEP Intermediate GPS Workshop
Exercise Two
Using Maps

During this exercise, you will scale coordinates from a map and enter them into the GPS receiver. This requires a ruler (provided) and all calculations require a paper and pencil. During this exercise, you will also find and store a location on the 'Map View' of the GPS receiver.

Part 1: *Scale coordinates from a map. The point we are locating is the southeast corner of the small island just south of Pelican Island in Leech Lake (see location at the tip of the arrow below). The map and ruler will be handed out for your use.*

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Calibrate your ruler to the <u>latitude</u> of the map: (Note: As latitude is the distance north or south of the equator, the grid lines are on the right or left side of the map.)

1. *How many minutes are there between the grid lines on the right or left side of the map? _____*

2. *How many seconds are there between the grid lines on the right or left side of the map? _____*

3. *Using your ruler, how many 1/16ths of an inch are there between the grid lines on the right or left side of the map?*
   _____

Calculate ruler scale for latitude:

4. *(_____ # of seconds between grid lines) ÷ (_____ # of 1/16ths of an inch between grid lines) = _____seconds. This means each 1/16th of an inch is equal to 5 seconds of latitude.*

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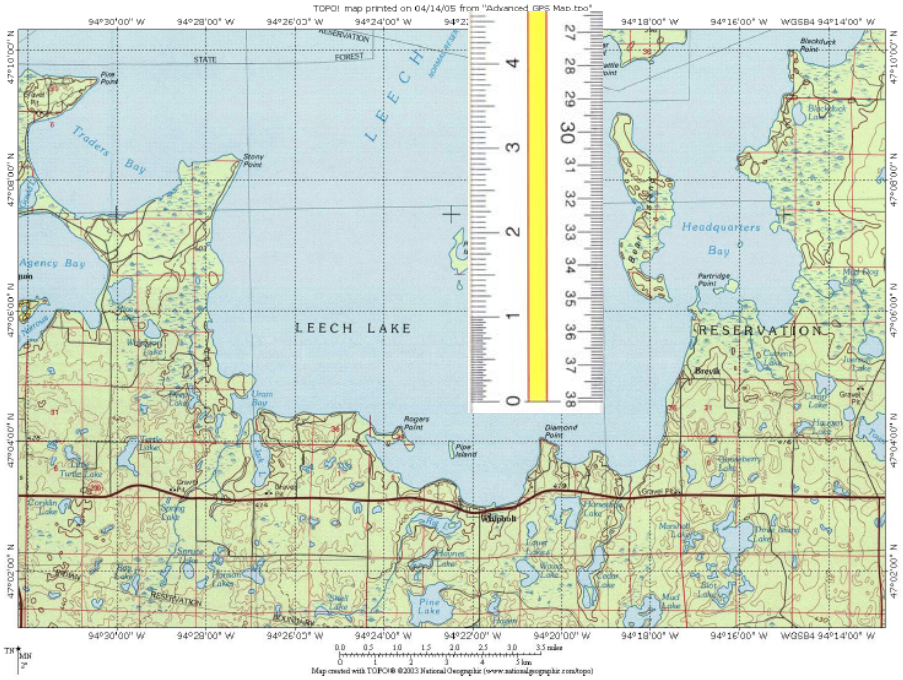
Calculate latitude of point:



5. *(_____ # of 1/16ths of an inch from grid line below to point to be scaled) X (5 seconds) = _____ seconds.*

   N 47° 06' 00" + _____ seconds = N ____ ° ____ ' ____ "

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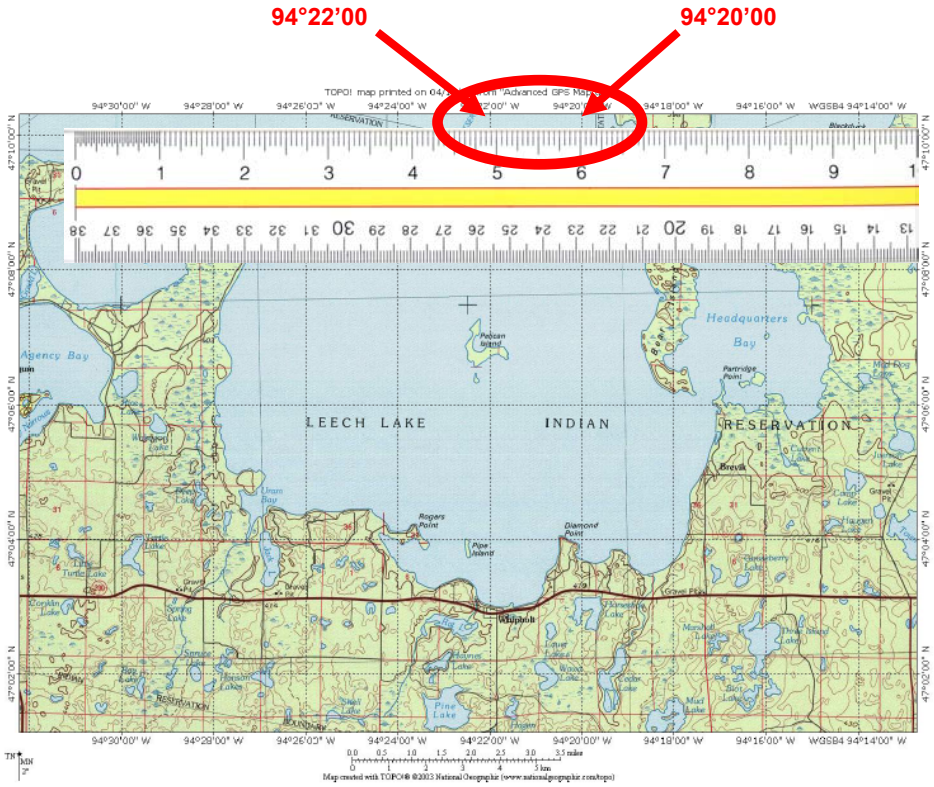
Calibrate your ruler to the <u>longitude</u> of the map: (Note: As longitude is the distance east or west of the prime meridian, the grid lines are across the top or bottom of the map.)



6. *How many minutes are there between the grid lines on top or bottom of the map?* _____

7. *How many seconds are there between the grid lines on the top or bottom of the map?* _____

8. *Using your ruler, how many 1/16ths of an inch are there between the grid lines on the top or bottom of the map?*
_____

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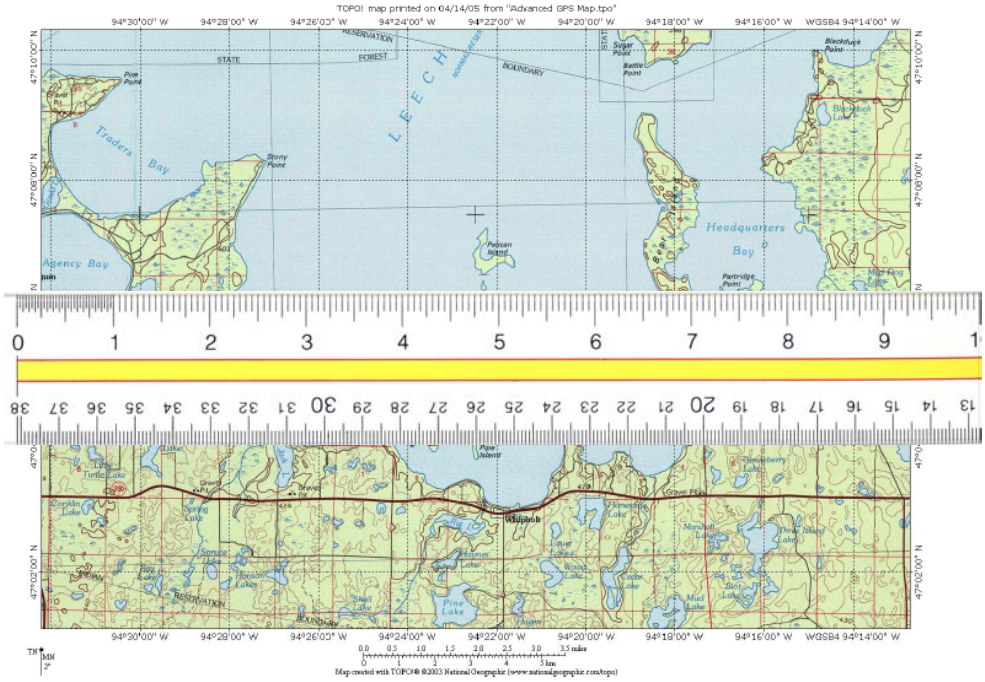
Calculate ruler scale for longitude:

9. *(_____ # of seconds between grid lines) ÷ (_____ # of 1/16ths of an inch between grid lines) = _____ seconds. This means each 1/16th of an inch is equal to 7 seconds of longitude.*

Calculate longitude of point:



10. *(_____ # of 1/16ths of an inch from grid line to the right to point to be scaled) X (7 seconds) = _____ seconds.*

    W 94° 22' 00" + _____ seconds = W ____° ____' ____"

The coordinates for the island are:

N ____° ____' ____" - Latitude

W ____° ____' ____" - Longitude

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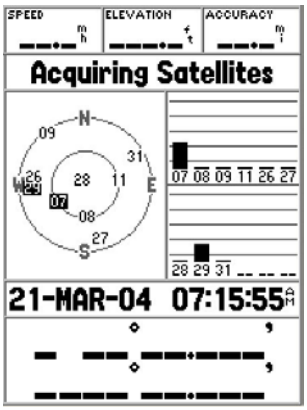
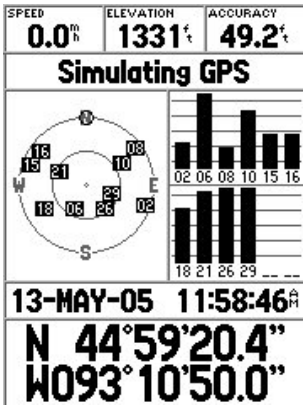
Part 2: *Enter the scaled map coordinates into the GPS receiver.*



1. *Press the <PAGE> key until you are at the 'Satellite View' screen.*

2. *Press the <MENU> key. Highlight 'Start Simulator' and press <ENTER> to accept.*



3. *Press and hold the <ENTER> key to activate the 'Mark Waypoint' screen.*

4. *Now you can edit this waypoint to create the scaled point.*

5. *Start your editing with the coordinates. Use the <ROCKER> key to highlight the 'Location' field and press the <ENTER> key.*

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6. *Using the <ROCKER> key, arrow to the right until the first digit that needs to be changed is highlighted. Do not change the 'N' as this tells the receiver this coordinate is north of the Equator.*

7. *Pressing the <ROCKER> key up or down moves though the numbers in sequence. Arrow right and continue to update the coordinate in the box.*

8. *Once the Latitude is updated, continue to arrow right to reach the Longitude numbers and edit those numbers as needed. Do not change the 'W' or the '0' as these are required fields for North America.*

9. *When the coordinate in the field is correct press the <ENTER> key once and the entire box is then highlighted once again.*

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10. *Next you can edit the map symbol using the <ROCKER> key. Highlight the field, press the <ENTER> key to see the choices, and use the <ROCKER> key to select the symbol. Press the <ENTER> key to accept.*

11. *Next highlight the waypoint name field and change it as shown using the <ROCKER> key. Press the <ENTER> key after you have entered the waypoint name 'SCALED'.*

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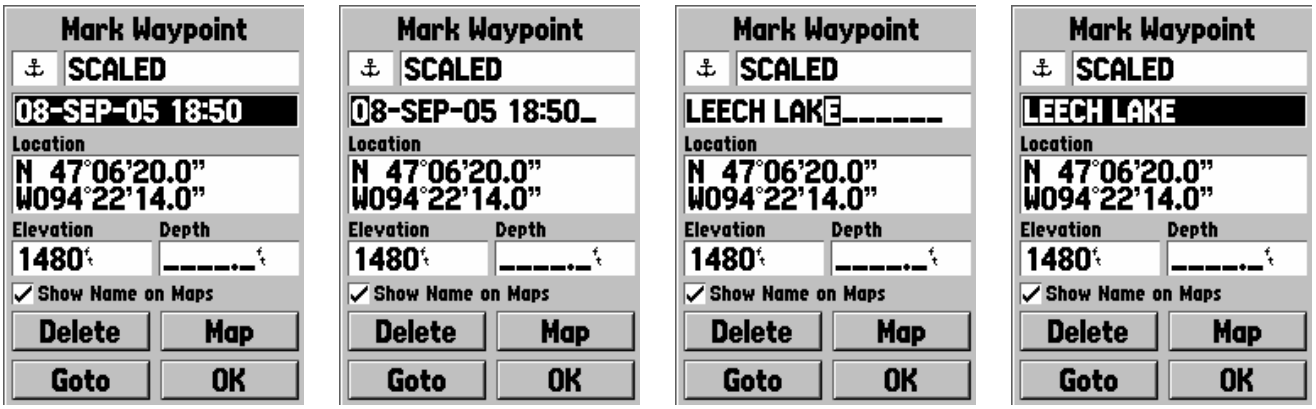
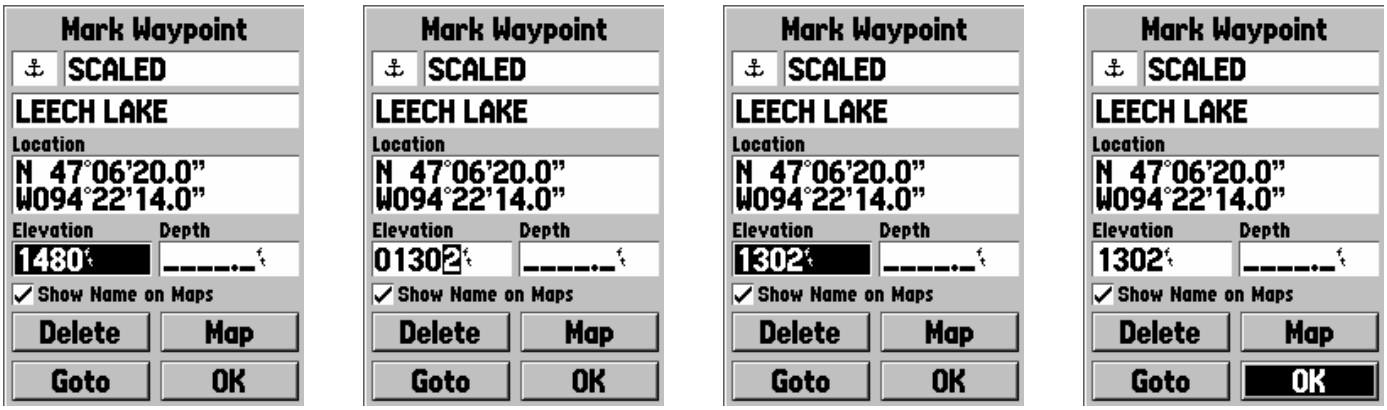
12. *Now we will enter extra information into the comment field as shown. Again, use the <ROCKER> key and <ENTER> key to accomplish this.*



13. *Lastly, we will edit the elevation and then highlight the 'OK' button and press the <ENTER> key to accept our changes.*



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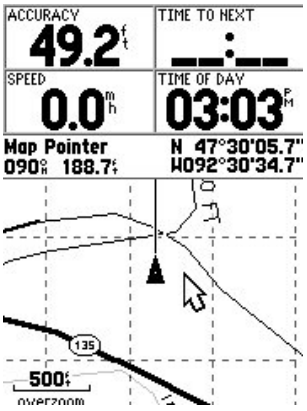
Part 3: *Determine coordinates from the built-in map on the GPS receiver and save them as a waypoint.*

1. *Press the <PAGE> key until the 'Map View' screen is displayed.*

2. *Use the <IN> or <OUT> keys to set the map scale at a level that is appropriate for you. This is usually between the 200 ft and the 500 ft level.*

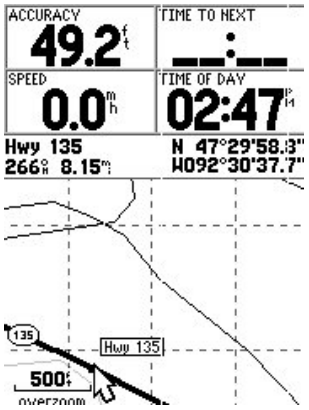


3. *Using the <ROCKER> key, move the map pointer towards the location you want to mark.*

4. *As soon as the arrow starts to move, a new line of information appears at the top of the 'Map View'. Within that line, the data on the left tells you the name of the item and the direction and distance from the last fix to the map pointer. The data on the right lists the coordinates of the map pointer.*

5. *When the location is not an element within the map, the display lists the name of the item as 'Map Pointer'.*

6. *If the item is an element within the map (a Street, Road, contour, river, lake, or Point of Interest like a freeway exit), you will see the name of the element.*



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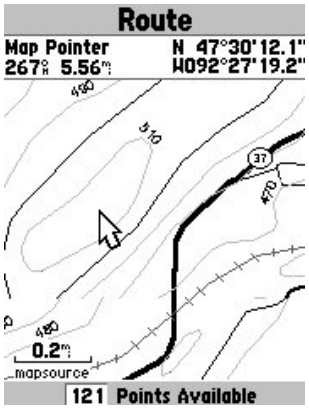

7. *Move the 'Map Pointer' to the position you wish to save.*

8. *Press the <ENTER> key and you will see the 'New Waypoint' screen. Note: You do not need to hold down the <ENTER> key when creating a new waypoint using the 'Map Pointer.'*

9. *Change the name to "SUMMIT". You can also change the symbol and other information about the point such as 'Elevation', 'Depth' if you are on a lake, and whether to show the point on the map or not.*

10. *After you finish your edits, accept and store the waypoint by highlighting the 'OK' button and pressing the <ENTER> key.*

11. *You have now saved this location as a waypoint named "SUMMIT" and will be returned to the 'Map View' screen where the new point will be displayed.*

12. *To verify the points' existence, go to the 'Waypoint' list from the 'Main Menu' and view it.*