

# General GPS Lesson – Understanding Accuracy and Precision with GPS

**GPS UNIT:**  
Garmin GPSmap 60cx

**Level:**  
Basic

**Menus/Pages:**  
Find  
Map  
Compass

## Summary:

GPS accuracy and precision is always a topic of interest. This exercise is designed to demonstrate the level of accuracy and precision you can expect with recreational grade units.

## Discussion:

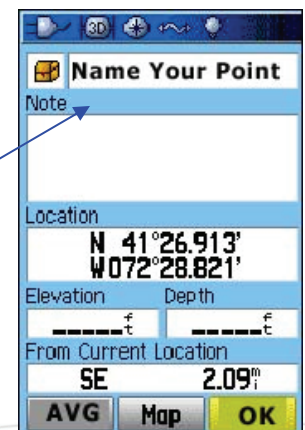
A general assumption with GPS units is that they can lead you to the exact location of a place, or that you can mark something with precise location coordinates. It's important to understand the limitations of recreational grade GPS units. Recreational grade GPS units have a traditional accuracy of between 2-5 meters in general.

## Instructor Set Up

Select a location outside and place a marker (flag or other visual item) at the location. Record the coordinate location with your unit.

## Exercise

1. Turn your GPS Unit on
  2. Allow unit to acquire current position
- \*\*troubleshooting: if unit does not report position, go to the Map page and press menu. Make sure the unit is using active GPS and not in simulation mode.
3. Create a new waypoint
    - a. Go to the Map page
    - b. Select the Mark Button – a named waypoint will come up by default. That's okay, we are going to rename it.
    - c. Use the cursor to move to the top field
    - d. Create a name for your point





- e. Use the cursor to move to the Location field
  - f. Type in the location the instructor has given you
  - g. Select OK to confirm the coordinates
4. Return to the Map Page
  5. Press the FIND button
  6. Highlight Waypoints
  7. Press the ENTR button
  8. Press QUIT to see a list of all symbols
  9. Use your cursor to find the waypoint you edited above
  10. Select "Go To" on the bottom menu to begin to navigation.
  11. You are now on the Map Page.
  12. Begin walking until your unit indicates you are at the location
  13. Place a marker at your spot

Name Your Point		
Note		
Location		
N 41°26.913'		
W 072°28.821'		
Elevation	Depth	
-----ft	-----ft	
From Current Location		
SE	2.09mi	
AVG	Map	OK

### Observations

1. How many markers were at the exact location of the mark of your instructor? Accuracy
2. Were the marks clustered or spread out? Precision

### Learning Points

Accuracy is degree in which you were correct. If all of your marks were in the proximity around your instructors, then you have a high level of accuracy.

Precision is the ability to reproduce findings over and over. If all your marks were in the same spot and not spread all around your instructor, then you have a high level of precision.



High Accuracy  
Low Precision

*Image: wikipedia cc*



High Precision  
Low Accuracy

*Image: wikipedia cc*