

KING COUNTY SEARCH & RESCUE LAND NAVIGATION COURSE
STUDENT WORKSHEET 1.5
Sept 2015

YOU MUST DO THIS WORKSHEET PRIOR TO COMING TO CLASS AND BRING IT WITH YOU TO CLASS. It is challenging, and you may have to go through the on-line material more than once . You will need the Green Trails 207S map, a latitude/longitude ruler, a ruler that will allow you to measure UTM, a straight edge, and a protractor (or compass that will work as a protractor) in order to do these problems. The worksheet took a very experienced person one hour to do, so you can expect to spend longer.

Your Name: _____ Unit: _____ DEM #: _____

All of the following exercises involve using the Green Trails 207S "Snoqualmie Pass Gateway" map. Because declination changes over time, it is good practice to associate a date with a magnetic compass reading. For purposes of this worksheet, use September 2012.

1. What is the latitude and longitude of the summit of Mount Defiance (elevation 5584)? Express your answer in degrees, minutes, decimal minutes.
2. What is the elevation of the Quarries located along Road 9031 between Exit 45 and the Ira Spring Trail?
3. What are the UTM coordinates for those Quarries?
4. What is located at UTM 10T 620225E 5250850N?
5. You are hiking and have gotten off the trail. You are not sure where you are located, but looking around, you can clearly see Granite Mountain, Pratt Mountain, and Bandera Mountain. Using your compass, you determine the magnetic bearing from your location to each of these features, as listed below. What is your location?
Express your answer in degrees, minutes and seconds.
Convert to True and plot AZ.

Bearing to Granite Mountain: 41.5° M

Bearing to Pratt Mountain: 307.5° M

Bearing to Bandera Mountain: 275.5° M

6. What is the location you determined for question 5 in UTM?

7. What does the map symbol located where the Highway 90 crosses the Denny Creek Trail represent?
8. What does the purple boundary around the Alpine Lakes Wilderness represent?
9. You just finished hiking the 1.8 mile section of the Pratt Lake Trail 1007 between the point marked "3400" just north of Pratt Lake to the point marked "4200" north-west of Olallie Lake. Based on the contour lines, what is the highest elevation you crossed during this hike?
10. What is the location of that point? Express your answer in UTM.
11. What is the true bearing from the peak of Mount Defiance to the peak of Pratt Mountain?
12. What is the true back bearing?
13. There is a lookout point next to the radio tower on Radio Mountain. There is another lookout point a short distance north-east of that point. What is the distance between the two lookout points?
14. Locate a campground anyplace on the map. State its name/location and give the UTM coordinates for it.
15. Off Exit 54, there is Road 4832, which goes south-east for 1 mile, where it intersects Road 144, the Huckleberry Peak Rd. Assuming you have a suitable vehicle for that road, how far up the Huckleberry Peak Rd would you be able to drive? Why?
16. What is located at UTM 10T 617500 5252070?
17. Two field search teams are moving up the Pratt Lake Trail. Team A is at the 3700 foot intersection with the Olallie Lake Trail. Team B is at the 4200 foot elevation, a little over a mile farther up the trail from the first team. Team B does a voice check and hears a response from the subject. They estimate the true bearing from their location to the subject's voice to be 93° T. Team A also hears the subject, and estimates the true bearing from their location to be 8° T. Where would you expect to find the subject, based on this information (you may describe the location, or provide a UTM coordinate for it)?
18. Being very adventurous, you decide to hike in a straight line from the south edge of Crystal Lake to the summit of Granite Mountain. How many feet of vertical change will there be on your route?
19. Hiking near the west side of Mason Lake you see an object at about the 4200 foot elevation point. You are both a little surprised, but also happy, to see it. What is the object?
20. How long is the Snoqualmie Tunnel? Provide your answer in meters / kilometers and feet/miles.