Navigation Worksheet C. Kohn, Waterford WI

Group Names (first/last):   
  
Hour Date: Why late? Score: + ✓ -

**Directions**: Use a National Geographic map of the Grand Canyon to complete the questions below. These assignments are graded on a +/✓/- scale. Complete this assignment in teams of 3-4. Each question should be answered by a different person and each person should do an equal number of questions. **UTM coordinates** are provided for the closest intersection of UTM grid lines on the map for each listed location below. **Declination** is shown on the top left of the West Side of the map. If the declination is listed with an “E”, add that amount to your bearing. If the declination is listed with a “W”, subtract that amount from your bearing.

1. What is the bearing from Yavapai Point (399 E, 3992 N) to the east suspension bridge (401 E, 3995 N)?   
     
   Without Declination: o With Declination: o
2. What is the bearing from Mather Campground (399 E, 3990 N) to the Backcountry Office (397 E, 3990 N)?   
     
   Without Declination: o With Declination: o
3. What is the bearing from Hermits Rest (391 E, 3991 N) to the Backcountry Office (397 E, 3990 N)?   
     
   Without Declination: o With Declination: o
4. What is the bearing from the east suspension bridge (401 E, 3995 N) to Cottonwood (407 E, 4003 N)?   
     
   Without Declination: o With Declination: o
5. The east suspension bridge on this map has both UTM and latitude/longitude coordinates listed. Provide its location for both in the spaces below:   
     
   Latitude/Longitude Location: UTM Location:
6. Hermits Rest is located at:   
     
   Latitude/Longitude Location: UTM Location:
7. Indian Garden Campground is located at:  
     
   Latitude/Longitude Location: UTM Location:
8. The North Rim Visitor Center is located at (upper left of map):  
     
   Latitude/Longitude Location: UTM Location:
9. You are traveling down the Bright Angel Trail from the Grand Canyon Village. You intend to meet friends at the Pipe Creek Beach Resthouse (400 E, 3995 N). What would be a good **backstop** to guide you?
10. What would be a good **handrail** to guide you on this same trail?
11. You are trying to reach Hermits Rest (391 E, 3991 N) via the Greenway Trail. What would be a good **handrail**?
12. You are trying to reach campsite BL4 (397 E, 3994 N) from the Plateau Point Trail. What would be a good **handrail** and/or **backstop** to make sure that you don’t go too far?   
      
       
      
    Briefly summarize how you would know if you passed this campsite by accident.

*Each of the following bearings are listed without declination. Ignore declination for these questions.*

1. You are on a peak. Bright Angel Campground has a bearing of 52o. Hermits Rest has a bearing of 255o. Where are you?
2. You are on a peak. Bright Angel Campground has a bearing of 320o. Hermits Rest has a bearing of 220o. Where are you?
3. You are at a campsite. Bright Angel Campground has a bearing of 85o. Hermits Rest has a bearing of 185o. Where are you?
4. You are at a campsite. Bright Angel Campground has a bearing of 344o. Hermits Rest has a bearing of 270o. Where are you?