The purpose of this worksheet is to provide you with the opportunity to review basic map and compass skills and review the travel route prior to participating in the mountaineering outing. Worksheets are due by the deadline specified on the course schedule – late submissions are not acceptable. A grade of 80% or better is required for a passing grade. Bearings must be no more than 2° off. Distances must be within one-tenth of a mile, and elevations must be within one contour interval. If a feature is between contour lines, split the difference. Collaboration with fellow classmates is highly recommended.

You'll need the following:
A. A map of the Three Sisters region (see instructor for details).
B. An orienteering compass. A hand lens WILL DEFINITELY help estimate elevations and find points.
C. The pdf titled 'mtn_travel_route', which depicts the travel route and campsite location. Tip: enlarge the pdf on a computer screen to maximize detail.
D. The article 'Estimating Travel Rates' from the course website. Read the information specified in this article on estimating travel rates and use your best judgment to determine a reasonable pace. Analyze your calculations and compare them to others to determine if they seem reasonable.

A. DISTANCE/ELEVATION ESTIMATIONS – estimate the following distances and elevations.

As you learned in Wilderness Survival, linear (map) mileage is different than adjusted (trail) mileage, due largely to slope error and the difficulty of tracing exactly where a twisty trail should be on a map. For the purposes of this assignment, multiply linear mileage by 1.3 to estimate the actual trail distance.

When calculating elevation gains or losses along a stretch of trail, carefully assess the trail’s path in relation to the contour lines. In cases where the trail comes close to, but does not touch a contour line, assume that this indicates a 1/2 contour interval change in elevation. If the trail touches a contour line, consider this a full contour interval change in elevation.

<table>
<thead>
<tr>
<th>LINEAR MILES</th>
<th>TRAIL MILES</th>
<th>TOTAL ELEV. GAIN</th>
<th>TOTAL ELEV. LOSS</th>
<th>NET CHANGE IN ELEV.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pole Creek Spring trailhead to Jct. of trail at pt. A:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total linear miles from Pole Creek Trailhead to campsite:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total adjusted (trail) miles from Pole Creek Trailhead to campsite:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total ELEVATION GAIN from Pole Creek Trailhead to campsite:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total ELEVATION LOSS from Pole Creek Trailhead to campsite:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NET CHANGE IN ELEVATION between Pole Creek Trailhead to campsite:</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

NOTE: Net change in elevation is simply the elevation difference between two points. Total elevation gains minus total elevation losses MUST equal the net change in elevation between points. If it doesn’t, recalculate!
B. RATE OF TRAVEL AND TRAVEL TIME ESTIMATIONS - estimate the following:

<table>
<thead>
<tr>
<th>Rate of Travel</th>
<th>Travel Time w/out Breaks</th>
<th>Break Time</th>
<th>Total Estimated Time</th>
<th>Projected Ground Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pole Cr. Spring trailhead to Jct. of trail at pt. A:</td>
<td>______________________ mhp</td>
<td>__________ minutes</td>
<td>______________________ minutes</td>
<td>______________________ minutes (travel on bare trail)</td>
</tr>
<tr>
<td>Jct. of trail at pt. A to Camp at X:</td>
<td>______________________ mhp</td>
<td>__________ minutes</td>
<td>______________________ minutes</td>
<td>______________________ minutes (off-trail travel on snow)</td>
</tr>
</tbody>
</table>

Total travel time from Pole Creek trailhead to campsite without breaks: __________ minutes.
Total break time: ______________________ minutes.
Total travel time: ______________________ hours/minutes.
Time of arrival at campsite: ______________________ p.m.

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C. MAP READING AND MAP AND COMPASS CALCULATIONS

1. What is the elevation of the following points along our intended travel route?
   a) Pole Creek Spring trailhead: __________ feet
   b) Trail jct. at pt. A: ______________________ feet
   c) Campsite location: __________ feet
   d) headwaters of Soap Creek: ______________________ feet

2. Provide the bearing between the following points:
   a) Pole Creek trailhead to jct. of trail at pt. A: __________ °
   b) Trail jct. at pt. A. to Camp X ______________________ °

3. Provide the precise location of the campsite using the LANDMARK REFERENCE SYSTEM. To use the reference system, find a prominent feature near our campsite to use as a reference. For the purposes of this assignment, use the Peak 7355 as the prominent feature. Provide the following:
   a) general description of our campsite location (e.g. elevation and physical characteristics); ______________________
   ______________________
   ______________________
   ______________________

   b) the BEARING and LINEAR DISTANCE TO our campsite FROM the summit of Peak 7355. ______________________
   ______________________
   ______________________
   ______________________

The Landmark Reference System process is one method of providing a specific location to rescuers in the event of an emergency requiring outside assistance. BE VERY PRECISE!