

Due October 15, 12:00pm (Upload your answers to the D2L submission folder)

1. What concepts or ideas from this reading do you have questions about? These can be concepts that you didn't understand or would like to learn more about. For each concept, write a few sentences that describe the concept as best you can and include your questions about the concept.
2. In the formula for the constraint forces on page 80 ( $Q_i^{nc} = \sum_{j=1}^k \lambda_j \frac{\partial f_j}{\partial q_i}$ ), there are two subscripts,  $i$  and  $j$ . What does each subscript represent? What is being summed over in that formula?
3. On page 87, when discussing the invariance of the Lagrangian, Hamill writes "Note, however, that although the *value* of  $L$  is the the same in both coordinate systems, its *form* may be quite different." How do we know that the value of  $L$  is the same in both coordinate systems? What does that mean?