HW1

CCE-661

2. The purpose of the figure 8s was to warm up the INS. Once warmed up, the system will output more consistent data.

3.

|  |  |  |
| --- | --- | --- |
|  | Mean | StDev |
| Roll |  |  |
| Pitch |  |  |
| Heading |  |  |

Yes, the values make sense. During flight, the roll and pitch don’t change as much so they are easier to track. Additionally, the known direction of gravity can help resolve those. Heading changes more during a flight and there is only the Magnetometer to help correct errors in heading.

4. Mean 3D Speed:

Yes, this value makes sense. The UAS seemed to be moving at a brisk walking pace which is approximately 1.5 m/s. The UAS is around that speed.

5. PLOTS!

6. Increased variation in each of those measurements can cause higher uncertainty. If the system can take many measurements of the same state, a filter can be used to refine the estimate.

7.