(a) g 1, d 1   **(b)** g 2, d 1   **(c)** g 4, d 1

(d) g 5, d 1   **(e)** g 8, d 1   **(f)** g 100, d 1

Figure 1: Different Gain Values

Weekly report

1   My *Objectives* this week

- Plotting all the plots with MATLAB better and put them all in the same picture.

- Write a Code to Control Variance.

2   My *Accomplishments* this week

2.1   *Auto Controllers*

- different gain values.

I tested 20 trials to find the best kgain. And I found out that for the derivative of 1, the best gain value is 4.

- different gain derivatives. I tested with the gain value of 4:

It shows that for the gain value 4, the best derivative is 1.

- Write a code to control variance.

I wrote a code that goes to corner when we want to make variance lower, and goes to center when we want to make variance higher.
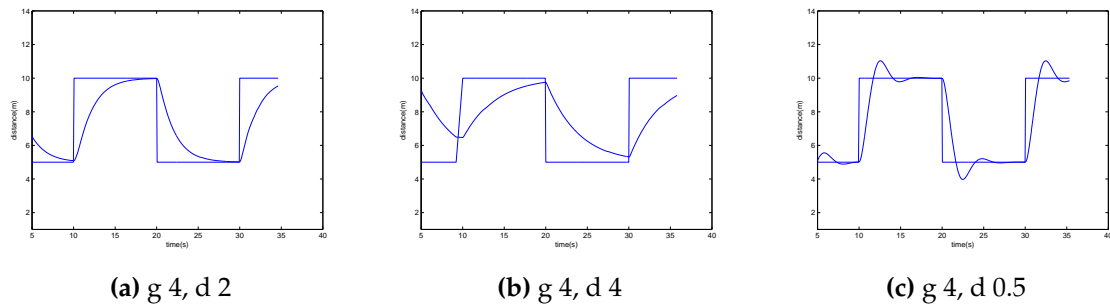
(a) g 4, d 2   **(b)** g 4, d 4   **(c)** g 4, d 0.5

Figure 2: Different Derivative Values

3   My *Plan* for next week

- Applying variance and covariance and standard deviation.

- Which one of them is the best?

3.1   Meeting with Dr. Becker On Wednesday 19th, 1 pm

- Deciding what to take for the next semester

- What to survey for lab access

- Show him results.