2.b)

e\_theta\_max = 30\*pi/180;

zeta\_pitch = 0.9;

P.pitch\_kp = P.delta\_e\_max/e\_theta\_max\*sign(models.a\_theta3);

P.pitch\_ki = 0.0;

omega\_n\_theta = sqrt(models.a\_theta2 + P.pitch\_kp\*models.a\_theta3);

P.pitch\_kd = (2\*zeta\_pitch\*omega\_n\_theta - models.a\_theta1)/models.a\_theta3;

P.K\_theta\_DC = P.pitch\_kp\*models.a\_theta3/(models.a\_theta2 + P.pitch\_kp\*models.a\_theta3);

2.c)

kp =

-1.5000

ki =

0

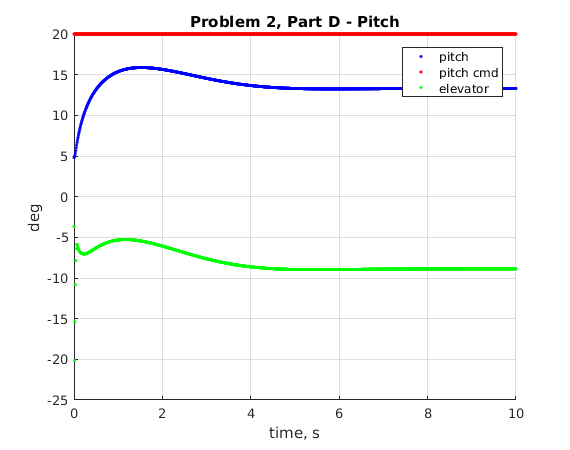
kd =

-0.2120

k\_dc =

0.6637

2.d)



2.e) ss\_pitch = 20\*P.K\_theta\_DC

ss\_pitch =

13.2743 (This is about where the blue line above levels off to)