Vehicular Electronics HW3

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All code is written in matlab.

**Q1.**

**Description**

Transfer Function G(s) = Y(s)/U(s) is

Use matlab to reduce formula. and use simplify function to simplify the formula.

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| syms s  A = [-1 0 1;  1 -2 0;  0 0 -3];  B = [0; 0; 1];  C = [1 1 0];  si = [ s 0 0;  0 s 0;  0 0 s];  G = C \* inv(si - A) \* B  simplify(G) |

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| --- |
| >> hw3  G =  1/((s + 1)\*(s + 3)) + 1/((s + 1)\*(s + 2)\*(s + 3))    ans =  1/(s^2 + 3\*s + 2) |

**Q2.**

**Description**

Use eig function to get eigen values**.**

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| --- |
| A = [0 1 0 0; 0 0 1 0; 0 0 0 1; 1 0 0 0];  eig(A) |

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| >> hw3  ans =  -1.0000 + 0.0000i  0.0000 + 1.0000i  0.0000 - 1.0000i  1.0000 + 0.0000i |

And transformation matrix P is