
```
clc; clear; close all;

fprintf('HW2 17a\n')
syms s1;
syms V1;
matA1 = [s1+1, -s1; -s1, s1+2];
disp(matA1);
matB1 = [V1;0];
disp(matB1);
currents1 = matA1\matB1;
disp(currents1);
I2_1 = currents1(2);
disp(I2_1);
fprintf('-----\n');
fprintf('HW2 17b\n')
syms s2;
syms V2;
matA2 = [2, -1; -1, (s2+1+(1/(2*s2)))];
disp(matA2);
matB2 = [V2;0];
disp(matB2);
currents2 = matA2\matB2;
disp(currents2);
I2_2 = currents2(2);
disp(I2_2);
fprintf('-----\n');
fprintf('HW2 19a\n')
syms s3;
syms V3;
matA3 = [2*s3+1, -1; -1, (3*s3+1+(2/s3))];
disp(matA3);
matB3 = [V3;0];
disp(matB3);
currents3 = matA3\matB3;
disp(currents3);
I2_3 = currents3(2);
disp(I2_3);
fprintf('-----\n');
fprintf('HW2 19b\n')
syms s4;
syms V4;
matA4 = [2*s4, -s4, -s4, 0;...
        -s4, (2*s4+1), 0, -1;...
        -s4, 0, (s4 + 1/s4), -1/s4;...
        0, -1, -1/s4, (2/s4 + 1)];
disp(matA4);
matB4 = [V4;0;0;0];
disp(matB4);
currents4 = matA4\matB4;
```

```

disp(currents4)
I3_4 = currents4(3);
disp(I3_4)
fprintf('-----
\n');

```

HW2 17a

```

[ s1 + 1,    -s1]
[    -s1, s1 + 2]

```

```

V1
0

```

```

(V1*(s1 + 2))/(3*s1 + 2)
(V1*s1)/(3*s1 + 2)

```

```

(V1*s1)/(3*s1 + 2)

```

HW2 17b

```

[ 2,          -1]
[ -1, s2 + 1/(2*s2) + 1]

```

```

V2
0

```

```

(V2*(2*s2^2 + 2*s2 + 1))/(2*(2*s2^2 + s2 + 1))
(V2*s2)/(2*s2^2 + s2 + 1)

```

```

(V2*s2)/(2*s2^2 + s2 + 1)

```

HW2 19a

```

[ 2*s3 + 1,          -1]
[          -1, 3*s3 + 2/s3 + 1]

```

```

V3
0

```

```

(V3*(3*s3^2 + s3 + 2))/(6*s3^3 + 5*s3^2 + 4*s3 + 2)
(V3*s3)/(6*s3^3 + 5*s3^2 + 4*s3 + 2)

```

```

(V3*s3)/(6*s3^3 + 5*s3^2 + 4*s3 + 2)

```

HW2 19b

```

[ 2*s4,    -s4,    -s4,    0]
[ -s4, 2*s4 + 1,    0,    -1]
[ -s4,    0, s4 + 1/s4, -1/s4]
[ 0,    -1,    -1/s4, 2/s4 + 1]

```

```

V4
0
0

```

0

$$\begin{aligned} & (2*V4*s4^4 + 4*V4*s4^3 + 4*V4*s4^2 + 2*V4*s4 + V4)/(s4*(s4^4 + 2*s4^3 \\ & + 3*s4^2 + 3*s4 + 2)) \\ & \quad (V4*s4^3 + 2*V4*s4^2 + 2*V4*s4 + V4)/(s4^4 + \\ & 2*s4^3 + 3*s4^2 + 3*s4 + 2) \\ & \quad (V4*s4*(2*s4^2 + 4*s4 + 3))/(s4^4 + \\ & 2*s4^3 + 3*s4^2 + 3*s4 + 2) \\ & \quad (V4*s4*(s4^2 + 2*s4 + 2))/(s4^4 + \\ & 2*s4^3 + 3*s4^2 + 3*s4 + 2) \\ & (V4*s4*(2*s4^2 + 4*s4 + 3))/(s4^4 + 2*s4^3 + 3*s4^2 + 3*s4 + 2) \end{aligned}$$

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