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Module 13

```
sympref('FloatingPointOutput',true);
```

Problem 4.9

```
clear all
syms V9 V3 vo
[vo] = solve(vo/(4+5) + (vo-V9)/3 + (vo-V3)/1, vo)

vo3V = eval(subs(vo, [V9, V3], [0, 3]))
vo9V = eval(subs(vo, [V9, V3], [9, 0]))

voTot = eval(subs(vo, [V9, V3], [9, 3]))
voTot2 = vo3V + vo9V
%
```

```
vo =

0.6923*V3 + 0.2308*V9


vo3V =

    2.0769


vo9V =

    2.0769


voTot =

    4.1538


voTot2 =

    4.1538
```

Problem 4.11

```
clear all
syms I6 V30 va vb vo io
[va, vb, vo, io] = solve(-I6+va/40+(va-vb)/10, (vb-va)/10-4*io+(vb+V30)/20,
 va--vb-vo, (va-vb)/10-io, va, vb, vo, io)

voI6 = eval(subs(vo, [I6, V30], [6, 0]))
voV30 = eval(subs(vo, [I6, V30], [0, 30]))

voTot = eval(subs(vo, [I6, V30], [6, 30]))
voTot2 = voI6 + voV30

ioI6 = eval(subs(io, [I6, V30], [6, 0]))
ioV30 = eval(subs(io, [I6, V30], [0, 30]))

ioTot = eval(subs(io, [I6, V30], [6, 30]))
ioTot2 = ioI6 + ioV30
%
```

va =

*29.3333*I6 - 0.2667*V30*

```
vb =

26.6667*I6 - 0.3333*V30

vo =

56*I6 - 0.6000*V30

io =

0.2667*I6 + 0.0067*V30

voI6 =

   336

voV30 =

   -18

voTot =

   318

voTot2 =

   318

ioI6 =

    1.6000

ioV30 =

    0.2000

ioTot =

    1.8000

ioTot2 =

    1.8000
```

Problem 4.18

```
clear all
syms V10 I2 va vb vo
[va, vb, vo] = solve((va-V10)/10-I2+0.5*vo+(va-vb)/1, -0.5*vo+(vb-va)/1+vb/4,
 vb-vo, va, vb, vo)

voV10 = eval(subs(vo, [V10, I2], [10, 0]))
voI2 = eval(subs(vo, [V10, I2], [0, 2]))

voTot = eval(subs(vo, [V10, I2], [10, 2]))
voTot2 = voV10 + voI2
%
```

```
va =

2.3077*I2 + 0.2308*V10


vb =

3.0769*I2 + 0.3077*V10


vo =

3.0769*I2 + 0.3077*V10


voV10 =

    3.0769


voI2 =

    6.1538


voTot =

    9.2308


voTot2 =

    9.2308
```

Published with MATLAB® R2022b