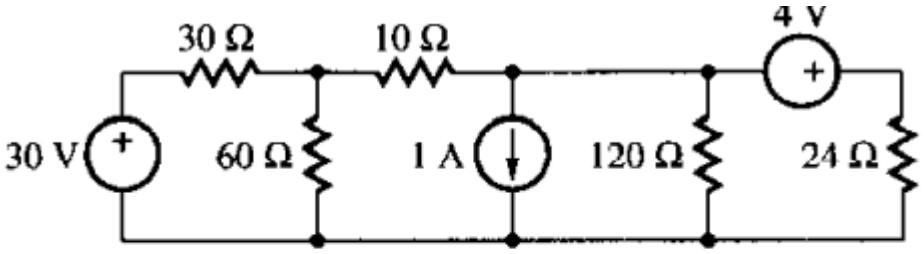
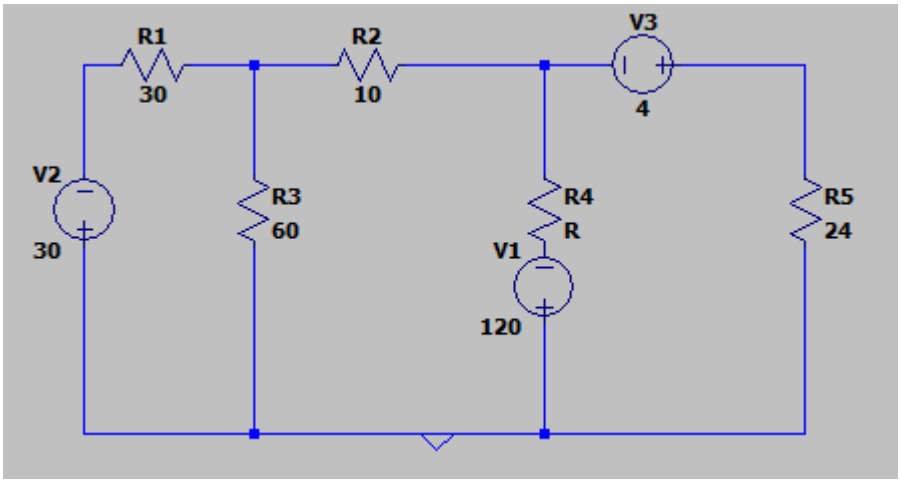


Figure P3.54

3.55 Using source transformations, find the magnitude and direction of the current through the 30-V source in Figure P3.54.

Aplicamos transformacion de fuentes




```
clc, clear, close all;
format short g
syms i1 i2 i3
v1 = 120;
v2 = 30;
v3 = 4;

r1=30;
r2=10;
r3=60;
r5=24;
```

resolvemos por mallas:

```
m_i1 = 90*i1-60*i2 == v2
```

m_i1 = $90\,i_1 - 60\,i_2 = 30$

```
m_i2 = -60*i1+190*i2+120*i3 == v1
```

m_i2 = $190\,i_2 - 60\,i_1 + 120\,i_3 = 120$

```
m_i3 = -120*i2+144*i3 == -116
```

m_i3 = $144\,i_3 - 120\,i_2 = -116$

```
m = [90 60 0;-60 190 -120;0 -120 144];
n = [30;120;-116];
h = m\n % corrientes de cada malla
```

```
h = 3×1
    0.11111
    0.33333
   -0.52778
```

La corriente es positiva por lo tanto va hacia arriba. verificamos en el simulador: