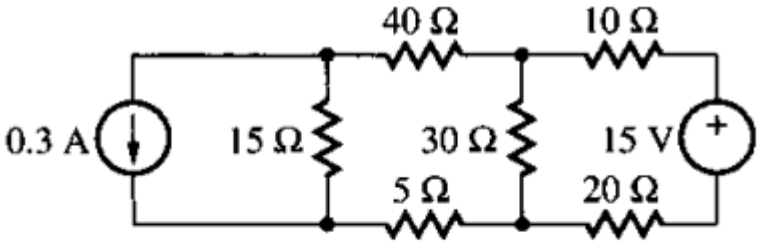
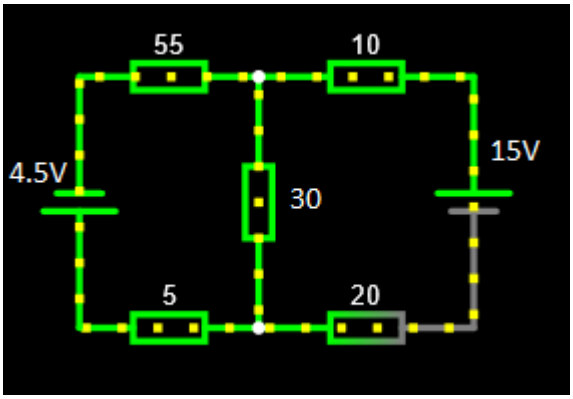


Figure P3.50

3.51 Apply source transformations to the circuit of Figure P3.50 to find (a) the magnitude and direction of the current through the 30-Ω resistance; (b) the magnitude and polarity of the voltage across the 5-Ω resistance.

Primero transformamos la fuente de corriente:



resolvemos por mallas

```
syms i1 i2 i3

vf1 = 15;
vf2 = 4.5;

r1 = 55;
r2 = 10;
r3 = 30;
r4= 5;
r5 = 20;

m_i1 = 90*i1-30*i2 == -vf2
```

```
m_i1 =
```

$$90\,i_1 - 30\,i_2 = -\frac{9}{2}$$

```
m_i2 = -30*i1+60*i2 == -vf1
```

m_i2 = $60\,i_2 - 30\,i_1 = -15$

```
m = [90 -30;-30 60];
n = [-9/2;-15];
h = m\n % corrientes de cada malla
```

```
h = 2×1
        -0.16
        -0.33
```

```
ir3 = h(2,1)-h(1,1) %corriente en r3
```

```
ir3 =
        -0.17
```

vemos que la corriente en r3 va hacia abajo, ahora calculamos la tension en r4:

```
vr4 = r4*h(1,1) %tension en r4
```

```
vr4 =
         -0.8
```

Nos da una tension negativa por lo tanto va hacia la izquierda. Verficamos en el simulador