

Definizione delle variabili, scrittura delle equazioni e conti.

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 $\alpha = \pi / 2$ ; nTot = 10;
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firstTypeEquations = List[];
For[k = 1, k < nTot - 1, k++, AppendTo[firstTypeEquations, c[k] - c[k + 1] - i[k + 1] == 0]];
secondTypeEquations = List[];
For[k = 2, k < nTot, k++,
  AppendTo[secondTypeEquations, c[k] - i[k] * k *  $\alpha$  + i[k + 1] * (k + 1) *  $\alpha$  == 0]];
thirdTypeEquations = {c[1] + i[2] * 2 *  $\alpha$  - 1 == 0};
fourthTypeEquations = {c[nTot - 1] - i[nTot] == 0};
listOfEquations =
  Flatten[{firstTypeEquations, secondTypeEquations, thirdTypeEquations, fourthTypeEquations}];

variables = List[]; For[k = 1, k < nTot, k++, AppendTo[variables, c[k]]];
For[k = 2, k ≤ nTot, k++, AppendTo[variables, i[k]]];

correnti = Flatten[NSolve[listOfEquations, variables]];
resistenzaEquivalenteInTerminiDiR = 1 / (c[1] /. correnti);
risultatoNumerico = 0.00168 * resistenzaEquivalenteInTerminiDiR;
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Elenco delle equazioni, elenco delle variabili, risultati.

In[30]:= **listOfEquations**

Out[30]= $\{c[1] - c[2] - i[2] == 0, c[2] - c[3] - i[3] == 0, c[3] - c[4] - i[4] == 0, c[4] - c[5] - i[5] == 0,$
 $c[5] - c[6] - i[6] == 0, c[6] - c[7] - i[7] == 0, c[7] - c[8] - i[8] == 0, c[8] - c[9] - i[9] == 0,$
 $c[2] - \pi i[2] + \frac{3}{2} \pi i[3] == 0, c[3] - \frac{3}{2} \pi i[3] + 2 \pi i[4] == 0, c[4] - 2 \pi i[4] + \frac{5}{2} \pi i[5] == 0,$
 $c[5] - \frac{5}{2} \pi i[5] + 3 \pi i[6] == 0, c[6] - 3 \pi i[6] + \frac{7}{2} \pi i[7] == 0, c[7] - \frac{7}{2} \pi i[7] + 4 \pi i[8] == 0,$
 $c[8] - 4 \pi i[8] + \frac{9}{2} \pi i[9] == 0, c[9] - \frac{9}{2} \pi i[9] + 5 \pi i[10] == 0, -1 + c[1] + \pi i[2] == 0, c[9] - i[10] == 0\}$

In[31]:= **variables**

Out[31]= $\{c[1], c[2], c[3], c[4], c[5], c[6], c[7], c[8],$
 $c[9], i[2], i[3], i[4], i[5], i[6], i[7], i[8], i[9], i[10]\}$

In[32]:= **correnti**

Out[32]= $\{c[1] \rightarrow 0.396277, c[2] \rightarrow 0.204106, c[3] \rightarrow 0.119305, c[4] \rightarrow 0.0746915, c[5] \rightarrow 0.048511,$
 $c[6] \rightarrow 0.0318411, c[7] \rightarrow 0.0204485, c[8] \rightarrow 0.0121072, c[9] \rightarrow 0.00554904,$
 $i[2] \rightarrow 0.192171, i[3] \rightarrow 0.0848014, i[4] \rightarrow 0.0446131, i[5] \rightarrow 0.0261805, i[6] \rightarrow 0.0166699,$
 $i[7] \rightarrow 0.0113927, i[8] \rightarrow 0.00834133, i[9] \rightarrow 0.00655811, i[10] \rightarrow 0.00554904\}$

In[33]:= **resistenzaEquivalenteInTerminiDiR**

Out[33]= 2.52349

In[36]:= **risultatoNumerico**

Out[36]= 0.00423946