Here is an end-of-term gift meant to assist you in your struggles with that resistor cube from Problem 36 yet more explicitly than via my old program QUICK that I already appended as a postscript to our 2-D resistor mesh from Problem 30. You are most welcome to employ this aptly named QUICK as a part of your own solution ... but, if so, only with the polite requirement that you include signs that you had at least to some extent actually comprehended and also proof-tested its marvelously rapid workings!

AT

Program QUICK3

implicit double precision (a-h,o-z)
dimension S2(0:99), WT(0:99)
pi = 4 * atan(1.0d0)
do 59 Nsize=2,100
   do 19 i=0,Nsize-1
      arg = pi * i / (2.0d0 * Nsize)
      S2(i) = sin(arg) * sin(arg)
      WT(i) = 2 * cos(arg) * cos(arg) / Nsize
         continue
   19   WT(0) = 1.0d0 / Nsize

   c ... Here 4 * S2(i) supplies 1-D eigenVALUES like 0,1,3 for Nsize=3
   c or 0, 2-sqrt(2), 2, and 2+sqrt(2) for Nsize=4, whereas WT(i)
   c reports the square of the vital first (or last) element of each
   c corresponding 1-D eigenVECTOR, now already divided by the sum
   c ssq = Nsize or Nsize/2 of the squares of all of its components.
   Rohms = 0
   do 49 K=0,Nsize-1
do 39 L=0,Nsize-1
do 29 M=0,Nsize-1
   KLM = K + L + M
   if (KLM.eq.2*(KLM/2)) go to 29
   c ... Yes, SKIP any composite K,L,M eigenvector for which the index
c sum K+L+M = even, since its first and last components would
c be identical, and it would contribute nothing to the sum below.
   Wcomp = WT(K) * WT(L) * WT(M)
   eigen = S2(K) + S2(L) + S2(M)
   Rplus = Wcomp / eigen
   Rohms = Rohms + Rplus
   if (Nsize.eq.4) then
      write (*,25) K,L,M, Wcomp, eigen, Rplus, Rohms
         format (10x, 3i5, 3x, 4f12.6)
   endif
   25   continue
   39   continue
   49   continue
      write (*,55) Nsize, Rohms
      format (20x, 'Nsize = ', i6, 5x, 'Rohms = ', f20.15)
   55   continue
   end