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V[x_, q_, n_] := q  $\frac{n (n + 1)}{2 \text{Cosh}[x]^2}$ 

k[x_, q_, n_] :=  $\sqrt{2 (En - V[x, q, n])}$ 

M_c[x_, q_, n_, dx_] := {{EI k[x,q,n]*dx, 0}, {0, E-I k[x,q,n]*dx}}

M_s[x_, q_, n_, dx_] := 0.5 * {{1 +  $\frac{k[x, q, n]}{k[x + dx, q, n]}$ , 1 -  $\frac{k[x, q, n]}{k[x + dx, q, n]}$ }, {1 -  $\frac{k[x, q, n]}{k[x + dx, q, n]}$ , 1 +  $\frac{k[x, q, n]}{k[x + dx, q, n]}$ }}

listmultiplier[list_, partitionwidth_ : 5] :=
  NestWhile[Dot @@@ Partition[#, partitionwidth, partitionwidth, 1, {}] &, list, Dimensions[#] [[1]] > 1 &] [[1]]

BigM[q_, n_, dx_] := Reverse@Table[M_s[x, q, n, dx].M_c[x, q, n, dx], {x, -3, 3, dx}] // N;

Mlist1 = BigM[1, 1, 0.005]; Mlist2 = BigM[-1, 1, 0.005];

Plot[{1 / (ComplexExpand@Abs@listmultiplier[Mlist1, 10] [[2]] [[2]])2, 1 / (ComplexExpand@Abs@listmultiplier[Mlist2, 10] [[2]] [[2]])2},
{En, 0, 1}, PlotRange -> All, PlotStyle -> {Black, Red}, PlotLegends -> {"T∈V+", "T∈V-"}, AxesLabel -> {"E", "T"},
PlotLabel -> "T(E), for n = 1"]

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