```mathematica
num[c_] := Numerator[c]; den[c_] := Denominator[c]
alpha[n_, c_] := alpha[n, c] = den[c] (Floor[n / den[c]] - Floor[(n - 1) / den[c]]) -
    num[c] (Floor[n / num[c]] - Floor[(n - 1) / num[c]])
Lm1[n_, c_] := (1 / den[c]) Sum[If[alpha[j, c] == 0, 0,
    alpha[j, c] (Log[j / den[c]] - Lm1[den[c] n / j, c])], {j, den[c] + 1, den[c] n}]
Em1[n_, c_] := 1 - (1 / den[c]) Sum[If[alpha[j, c] == 0, 0, alpha[j, c] (Em1[den[c] n / j, c])],
    {j, den[c] + 1, den[c] n}]
LlmAlt[n_, c_] := den[c]^-1 Sum[Em1[n den[c] / j, c] N[alpha[j, c] Log[j / den[c]]],
    {j, 1, n den[c]}]


{LlmAlt[20, 3 / 2], N[Lm1[20, 3 / 2]]}

{-0.301201, -0.301201}

{N[E1[88, -1, 3 / 2]], N[Em1[88, 3 / 2]]}

{E1[88., -1., 1.5], 31.8931}

DiscretePlot[Em1[n, 3 / 2], {n, 1, 100}]
```