```
Lm1[n_, c_] :=
 -Sum[Log[j] + Lm1[n / j, c], {j, 2, n}] + c Sum[Log[j c] + Lm1[n / (j c), c], {j, 1, n / c}]
Lm2[n_, c_] := Sum[-Log[j] - Lm2[n / j, c], {j, 2, n}] -
  If[n / c < 2, 0, c Sum[-Log[j c] - Lm2[n / (j c), c], {j, 2, n / c}]] -
  If[n / c < 1, 0, c Sum[-Log[j c] - Lm2[n / (j c), c], {j, 1, 1}]]
Lm3[n_, c_] := Sum[-Log[j] - Lm3[n / j, c], {j, 2, n}] -
  If[n / c < 2, 0, Sum[-c Log[j c] - c Lm3[n / (j c), c], {j, 2, n / c}]] -
  If[n / c < 1, 0, -c Log[c] - c Lm3[n / c, c]]
Lm4[n_, c_] := If[n / c < 2, 0, Sum[-Log[j] - Lm4[n / j, c], {j, 2, n / c}]] +
  If[Floor[n / c] + 1 > n, 0, Sum[-Log[j] - Lm4[n / j, c], {j, Floor[n / c] + 1, n}]] -
  If[n / c < 2, 0, Sum[-c Log[j c] - c Lm4[n / (j c), c], {j, 2, n / c}]] -
  If[n / c < 1, 0, -c Log[c] - c Lm4[n / c, c]]


N[Lm1[100, 2]]
```

```
-6.70877
```

```
N[Lm2[100, 2]]
```

```
-6.70877
```

```
N[Lm3[100, 2]]
```

```
-6.70877
```

```
N[Lm4[100, 2]]
```

```
$RecursionLimit::reclim : Recursion depth of 256 exceeded. ≫

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General::stop : Further output of $RecursionLimit::reclim will be suppressed during this calculation. ≫

$Aborted
```

```
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}]
Em2[n_, c_] := Em2[n, c] = 1 - Sum[Em2[n / j, c], {j, 2, n}] +
   c Sum[Em2[n / (j c), c], {j, 1, n / c}]

Em1[100, 3 / 2]
```

$$\frac{19\,685}{2048}$$