```
Dd[fn_, k_, n_, s_] := Sum[(fn[m]^(k - j)) Binomial[k, j] Dd[ fn, j, n / (m^(k - j)), m + 1],
  {m, s, n^(1 / k)}, {j, 0, k - 1}]
Dd[fn_, 0, n_, s_] := 1
dd[fn_, k_, n_] := Dd[fn, k, n, 2] - Dd[fn, k, n - 1, 2]
fulld[fn_, n_, k_] :=
 Sum[fn[j] Dd[fn, k - 1, n / j, 2], {j, Floor[n^(1 / 3)] + 1, n^(1 / 2)}] +
  Sum[Sum[fn[m], {m, Floor[n / (j + 1)] + 1, n / j}] Dd[fn, k - 1, j, 2],
   {j, 1, n / Floor[n^(1 / 2)] - 1}] +
  Sum[dd[fn, k - 1, j] Sum[fn[m], {m, 2, n / j}], {j, 2, n^(1 / 3)}] +
  Sum[fn[s] dd[fn, m, j] Dd[fn, k - m - 1, n / (j s), 2], {j, 2, n^(1 / 3)},
   {s, Floor[Floor[n^(1 / 3)] / j] + 1, Floor[n / j]^(1 / 2)}, {m, 1, k - 2}] +
  Sum[(Sum[fn[m], {m, Floor[n / (j (s + 1))] + 1, n / (j s)}])
     (Sum[dd[fn, m, j] Dd[fn, k - m - 1, s, 2], {m, 1, k - 2}]),
   {j, 2, n^(1 / 3)}, {s, 1, Floor[n / j] / Floor[Floor[n / j]^(1 / 2)] - 1}]
fulld[fn_, n_, 1] := Sum[fn[j], {j, 2, n}]


id[n_] := 1

Dd[id, 3, 100, 2]

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fulld[ id, 100, 3]

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```