```
E2c2[n_, 0, x_] := 1
E2c2[n_, k_, x_] := E2c2[n, k, x] = Sum[ E2c2[ n / j, k - 1, x], {j, 2, Floor[n]}]
E2c1[n_, 0, 0, x_] := 1
E2c1[n_, 0, k2_, x_] := E2c2[n, k2, x]
E2c1[n_, k1_, k2_, x_] :=
 E2c1[n, k1, k2, x] = Sum[ E2c1[n / j, k1 - 1, k2, x], {j, 1, Floor[n]}]
E2c[ n_, k_, x_] := Sum[ (-1)^j Binomial[ k, j] x^j E2c1[n / x^j, j, k - j, x], {j, 0, k}]
E2cm[ n_, k_, x_] :=
 Sum[ (-1)^(k - j) Binomial[ k, k - j] x^(k - j) E2c1[n / x^(k - j), k - j, j, x],
  {j, 0, Min[k, Floor[Log[2, n]]]}]
pp[ n_, x_] := Sum[x^j / j, {j, 1, Log[x, n]}] +
  Sum[ (-1)^(k + 1) / k E2cm[ n, k, x], {k, 1, Log[If[x < 2, x, 2], n]}]


pp[100, 3 / 2]
```

$$\frac{428}{15}$$