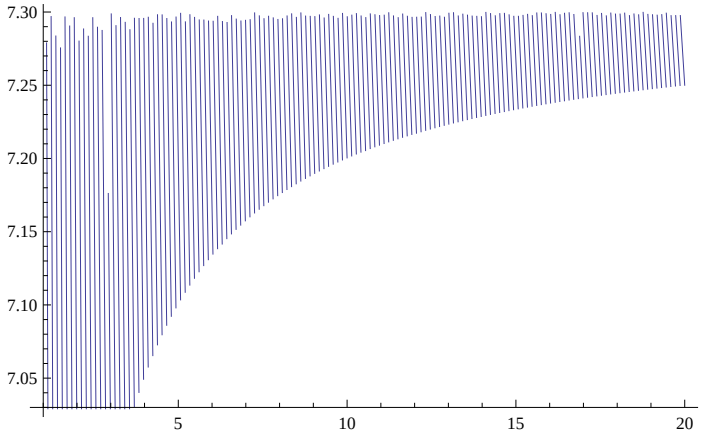
```
Dd[x_, 1, a_] := Sum[ (j + a)^0, {j, 0, Floor[x - a]}]
Cc[ x_, 1, a_] := a^(-1) Dd[ x a, 1, a + 1]
```

```
Plot[Cc[8.3, 1, n], {n, 1, 20}]
```




```
Limit[ Cc[ n, 1, a], a → Infinity]
```

$$\text{Limit}\left[\frac{\text{Floor}[-a + a\,n]}{a}, a \to \infty\right]$$

```
F[ fn_, x_, 0] := 1; F[ fn_, x_, k_] := Sum[ fn[j] F[fn, x / j, k - 1], {j, 1, Floor[x]}]
f[ fn_, x_, k_] := F[ fn, x, k] - F[fn, x - 1, k]
FAlt[ fn_, x_, k_, t_] := Sum[ fn[j] F[fn, x / j, k - 1], {j, t + 1, Floor[x]}] +
  Sum[ f[ fn, j, k - 1] F[ fn, x / j, 1], {j, 1, t}] +
  Sum[ fn[s] f[fn, j, m] F[fn, x / (j s), k - m - 1],
   {j, 1, t}, {s, Floor[t / j] + 1, Floor[x / j]}, {m, 1, k - 2}]
```

```
F[MoebiusMu, 100, 3]
```

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```
FAlt[ MoebiusMu, 100, 3, 15]
```

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```
FAlt2[ fn_, x_, k_, t_] :=
 Sum[ fn[j] F[fn, x / j, k - 1], {j, t + 1, Floor[ x^(1 / 2)]}] +
  Sum[ (F[fn, x / j, 1] - F[fn, x / (j + 1), 1]) F[fn, j, k - 1],
   {j, 1, Floor[ x / Floor[x^(1 / 2) - 1]]}] +
  Sum[ f[fn, j, k - 1] (F[fn, x / j, 1] - F[fn, x / (j + 1), 1]), {j, 1, t}] +
  Sum[ fn[s] f[ fn, j, m] F[ fn, x / (j s), k - m - 1], {j, 1, t},
   {s, Floor[t / j + 1], Floor[Floor[ x / j]^(1 / 2)]}, {m, 1, k - 2}] +
  Sum[ (F[fn, x / (j s), 1] - F[fn, x / (j (s + 1)), 1])
     Sum[ fn[s] f[fn, j, m] F[fn, s, k - m - 1], {m, 1, k - 2}],
   {j, 1, t}, {s, 1, Floor[Floor[x / j] / Floor[Floor[x / j]^(1 / 2)] - 1]}]
```

```
FAlt2[ MoebiusMu, 100, 3, 15]
```

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```
FAlt3[ fn_, x_, k_, t_] :=
 Sum[ fn[j] F[fn, x / j, k - 1], {j, t + 1, Floor[ x^(1 / 2)]}] +
  Sum[ (F[fn, x / j, 1] - F[fn, x / (j + 1), 1]) F[fn, j, k - 1],
   {j, 1, Floor[ x / Floor[x^(1 / 2) - 1]]}] +
  Sum[ f[fn, j, k - 1] (F[fn, x / j, 1] - F[fn, x / (j + 1), 1]), {j, 1, t}] +
  Sum[ fn[s] f[ fn, j, m] F[ fn, x / (j s), k - m - 1], {j, 1, t},
   {s, Floor[t / j + 1], Floor[Floor[ x / j]^(1 / 2)]}, {m, 1, k - 2}] +
  Sum[ (F[fn, x / (j s), 1] - F[fn, x / (j (s + 1))])
     Sum[ fn[s] f[fn, j, m] F[fn, s, k - m - 1], {m, 1, k - 2}],
   {j, 1, t}, {s, 1, Floor[Floor[x / j] / Floor[Floor[x / j]^(1 / 2)] - 1]}]
```

```
FAlt3[ MoebiusMu, 100, 3, 5]
```

$$37 + F[\text{MoebiusMu}, 5] - 2\left(-1 - F\left[\text{MoebiusMu}, \frac{50}{9}\right]\right) - F\left[\text{MoebiusMu}, \frac{50}{7}\right] - 2\left(-1 - F\left[\text{MoebiusMu}, \frac{25}{3}\right]\right) +$$
$$F\left[\text{MoebiusMu}, \frac{25}{3}\right] + F[\text{MoebiusMu}, 10] + 2\left(-2 - F\left[\text{MoebiusMu}, \frac{25}{2}\right]\right) + F\left[\text{MoebiusMu}, \frac{25}{2}\right] +$$
$$F\left[\text{MoebiusMu}, \frac{100}{7}\right] + 2\left(-3 - F\left[\text{MoebiusMu}, \frac{50}{3}\right]\right) + F\left[\text{MoebiusMu}, \frac{50}{3}\right] - F[\text{MoebiusMu}, 50]$$