```
DP[n_, k_, s_] := Sum[
   Sum[Binomial[k, k - j] DP[Floor[n / m^j], k - j, m + 1], {m, s, Floor[n^(1 / k)]}], {j, 1, k}]
DP[n_, 0, s_] :=
 1
DP[100, 4, 1]
```

3575

```
DP[n, 0, s]
```

1

```
DI[n_, 0, s_] := 1
```

```
DP[n, 1, s]
```

$1 - s + \text{Floor}[n]$

```
DI[n_, 1, s_] := 1 - s + Floor[n]
```

```
DP[n, 2, s]
```

$$1 - s + \text{Floor}\left[\sqrt{n}\right] + \sum_{m=s}^{\text{Floor}\left[\sqrt{n}\right]} 2\left(-m + \text{Floor}\left[\frac{n}{m}\right]\right)$$

```
DI[n_, 2, s_] := (-1 + s)^2 - Floor[√n]^2 + 2
```
$$(-1 + s)^2 - \text{Floor}\left[\sqrt{n}\right]^2 + 2 \sum_{m=s}^{\text{Floor}\left[\sqrt{n}\right]} \text{Floor}\left[\frac{n}{m}\right]$$

```
DI0[n_, s_] := 1
```

```
DI1[n_, s_] := 1 - s + Floor[n]
```

```
DI2[n_, s_] := (-1 + s)^2 - Floor[√n]^2 + 2
```
$$(-1 + s)^2 - \text{Floor}\left[\sqrt{n}\right]^2 + 2 \sum_{m=s}^{\text{Floor}\left[\sqrt{n}\right]} \text{Floor}\left[\frac{n}{m}\right]$$

```
DI3[n_, s_] :=
   Sum[ Binomial[3, 3 - 1] DI[Floor[n / m^1], 3 - 1, m + 1], {m, s, Floor[n^(1 / 3)]}] +
   Sum[ Binomial[3, 3 - 2] DI[Floor[n / m^2], 3 - 2, m + 1], {m, s, Floor[n^(1 / 3)]}] +
   Sum[ Binomial[3, 3 - 3] DI[Floor[n / m^3], 3 - 3, m + 1], {m, s, Floor[n^(1 / 3)]}]
DI3a[n_, s_] := Binomial[3, 3 - 1] Sum[DI2[Floor[n / m^1], m + 1], {m, s, Floor[n^(1 / 3)]}]
DI3b[n_, s_] := Binomial[3, 3 - 2] Sum[ DI1[Floor[n / m^2], m + 1], {m, s, Floor[n^(1 / 3)]}]
DI3c[n_, s_] := Binomial[3, 3 - 3] Sum[ DI0[Floor[n / m^3], m + 1], {m, s, Floor[n^(1 / 3)]}]
```

```
DI3a[n, s]
```

Sum::write : Tag Plus in Sum`FiniteSumDump`l + s is Protected. ≫

Sum::write : Tag Plus in Sum`FiniteSumDump`l + s is Protected. ≫

Sum::write : Tag Plus in Sum`FiniteSumDump`l + s is Protected. ≫

General::stop : Further output of Sum::write will be suppressed during this calculation. ≫

$$3 \sum_{m=s}^{\text{Floor}\left[n^{1/3}\right]} \left(m^2 - \text{Floor}\left[\sqrt{\text{Floor}\left[\frac{n}{m}\right]}\right]^2 + 2 \sum_{m=1+m}^{\text{Floor}\left[\sqrt{\text{Floor}\left[\frac{n}{m}\right]}\right]} \text{Floor}\left[\frac{\text{Floor}\left[\frac{n}{m}\right]}{m}\right] \right)$$