```
bin[z_, k_] := Product[z - j, {j, 0, k - 1}] / k!
ss1[n_] := HarmonicNumber[n - 1]
ss[n_, 0] := UnitStep[n]
ss[n_, k_] := ss[n, k] = Sum[ (1 / j) ss[n - j, k - 1], {j, 1, n - 1}]
sz[n_, z_] := Sum[ z^k / (k!) ss[n, k], {k, 0, n}]
szz[n_, z_] := Pochhammer[n, z] / z!
s2[n_, k_] := Sum[ (-1)^(k - j) bin[k, j] szz[n, j], {j, 0, k}]
s2a[n_, k_] := Binomial[n - 1, k]
s2o[n_, 0] := UnitStep[n]
s2o[n_, k_] := s2o[n, k] = Sum[ s2o[n - j, k - 1], {j, 1, n - 1}]
sz2[n_, z_] := Sum[ bin[z, k] s2o[n, k], {k, 0, n}]

cdss1[n_] := 1 / (n - 1)
dszz[n_, z_] := Pochhammer[n, z - 1] / (z - 1)!
ds2a[n_, k_] := Binomial[n - 2, k - 1]

ssx[n_, 0] := UnitStep[n - 1]
ssx[n_, k_] := ssx[n, k] = Sum[ (1 / (j - 1)) ssx[n - (j - 1), k - 1], {j, 2, n}]
szx[n_, z_] := Sum[ z^k / (k!) ssx[n, k], {k, 0, n}]
szzx[n_, z_] := Pochhammer[n, z] / z!
s2x[n_, k_] := Sum[ (-1)^(k - j) bin[k, j] szzx[n, j], {j, 0, k}]
s2ax[n_, k_] := Binomial[n - 1, k]
s2ox[n_, 0] := UnitStep[n - 1]
s2ox[n_, k_] := s2ox[n, k] = Sum[ s2ox[n - (j - 1), k - 1], {j, 2, n}]
sz2x[n_, z_] := Sum[ bin[z, k] s2ox[n, k], {k, 0, n}]


D[Gamma[0, n] + Log[n] + EulerGamma, n]
```

$$\frac{1}{n} - \frac{e^{-n}}{n}$$

```
D[LogIntegral[n] - Log[Log[n]] - EulerGamma, n]
```

$$\frac{1}{\text{Log}[n]} - \frac{1}{n\,\text{Log}[n]}$$

```
D[szz[10, z] - szz[9, z], z] /. z → 0
```

$$\frac{1}{9}$$

```
D[Log[n], n]
```

$$\frac{1}{n}$$