```
FullSimplify[Sum[ 1, {t, 0, x}, {u, 0, x - t}, {v, 0, x - t - u}]]
```

$$\frac{1}{6} (1 + x) (2 + x) (3 + x)$$

```
FullSimplify[1 + 2 Sum[ 1, {t, 1, x - 1}] + Sum[1, {t, 1, x - 1}, {u, 1, x - 1 - t}]]
```

$$\frac{1}{2} x (1 + x)$$

```
FullSimplify[Sum[ 1,  {t, 1, x}, {u, 1, x - (t - 1)}]]
```

$$\frac{1}{2} x (1 + x)$$

```
1 + Integrate[1, {t, 0, x - 1}]
```

$$x$$

```
1 + 2 Integrate[1, {t, 0, x - 1}] + Integrate[1, {t, 0, x - 1}, {u, 0, x - 1 - t}]
```

$$275.125$$

```
Integrate[1, {t, 0, x}, {u, 0, x - t}]
```

$$\frac{x^2}{2}$$

```
FullSimplify[1 + 2 Sum[1, {t, 1, x - 1}] + Sum[1, {t, 1, x - 1}, {u, 1, x - 1 - t}]]
```

$$\frac{1}{2} x (1 + x)$$

```
FullSimplify[Sum[1, {t, 1, x}, {u, 1, x - (t - 1)}]]
```

$$\frac{1}{2} x (1 + x)$$

```
LaguerreL[2, 1 - 22.5]
```

$$275.125$$

```
FullSimplify[Integrate[ (1 / t) (Log[x]^(k - 1)), {t, 1, x}]]
```

$$\text{ConditionalExpression}\left[\text{Log}[x]^k, \text{Re}[x] \geq 0 \mid\mid x \notin \text{Reals}\right]$$

```
Integrate[ 1,  {t, 1, x}, {u, 1, x - (t - 1)}]
```

$$\frac{1}{2} - x + \frac{x^2}{2}$$

```
Integrate[ 1,  {t, 0, x - 1}, {u, 0, x - 1 - t}]
```

$$\frac{1}{2} - x + \frac{x^2}{2}$$

```
E^-t / t
```

$$\frac{e^{-t}}{t}$$

```
1 / (E^t t)
```

$$\frac{e^{-t}}{t}$$

```
Clear[ss]
bin[z_, k_] := Product[z - j, {j, 0, k - 1}] / k!
ss[x_, 0] := UnitStep[x]
ss[x_, k_] := ss[x, k] = Sum[ ss[x - (t - 1), k - 1], {t, 2, x}]
sz[x_, z_] := Sum[ bin[z, k] ss[x, k], {k, 0, x}]
Expand[sz[20, z]] /. z → -1
```

```
0
```

```
HarmonicNumber[19]
```

$$\frac{275\,295\,799}{77\,597\,520}$$

```
sz[20, 2]
```

```
210
```

```
(19 + 2)! / (19! × 2!)
```

```
210
```

```
Gamma[20 + 2] / (Gamma[20] Gamma[3])
```

```
210
```

```
Pochhammer[20, 2] / 2!
```

```
210
```

```
Gamma'[x] / Gamma[x]
```

```
PolyGamma[0, x]
```

```
Length@{3, 4, 5}
```

```
3
```

```
Ss[l_] := If[Length[l] < 1, 0, First[l] + Ss[Rest[l]]]
```

```
Ss[{1, 2, 3, 4, 5, 6}]
```

```
21
```

```
Clear[Dr]
Dr[x_, l_] := Dr[x, l] =
  If[Length[l] < 1, 1, Sum[ Dr[x - Log[First[l], t], Rest[l]], {t, 1, Floor[First[l]^x]}]]
```

```
.7 - Log[t] / Log[14] > 0
```

$$0.7 - \frac{\text{Log}[t]}{\text{Log}[14]} > 0$$

```
Log[t] < .7 Log[14]
```

```
Log[t] < 1.84734
```

```
t ≤ Floor[E^(.7 Log[14])]
```

```
t ≤ 6
```

```
E^(.7 Log[14])
```

6.34293

```
E^(Log[14^.7])
```

6.34293

```
14^.7
```

6.34293

```
Dr[1, {100, 100}]
```

482

```
Table[Dr[1, {a, b}], {a, 2, 10}, {b, 2, 10}] // TableForm
```

3	4	5	6	7	8	9	10	11
4	5	6	7	8	10	11	12	13
5	6	8	9	10	11	12	14	15
6	7	9	10	11	13	14	16	17
7	8	10	11	14	15	16	17	19
8	10	11	13	15	16	17	19	20
9	11	12	14	16	17	20	21	22
10	12	14	16	17	19	21	23	24
11	13	15	17	19	20	22	24	27