In[]:=
```
f[x_] := x^13 / (1 - x)^14
```

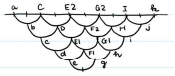
```
Sum[1, {a, 1, n - 10}, {b, a + 1, n - 9}, {c, b + 1, n - 8},
 {d, c + 1, n - 7}, {e, d + 1, n - 6}, {f, e + 1, n - 5}, {g, f + 1, n - 4},
 {h, g + 1 , n - 3}, {i, h + 1, n - 2}, {j, i + 1, n - 1}, {k, j + 1, n}]
```

Out[]=
$$\left(3\,628\,800\,n - 10\,628\,640\,n^2 + 12\,753\,576\,n^3 - 8\,409\,500\,n^4 + 3\,416\,930\,n^5 - 902\,055\,n^6 + 157\,773\,n^7 - 18\,150\,n^8 + 1320\,n^9 - 55\,n^{10} + n^{11}\right) \Big/ 39\,916\,800$$

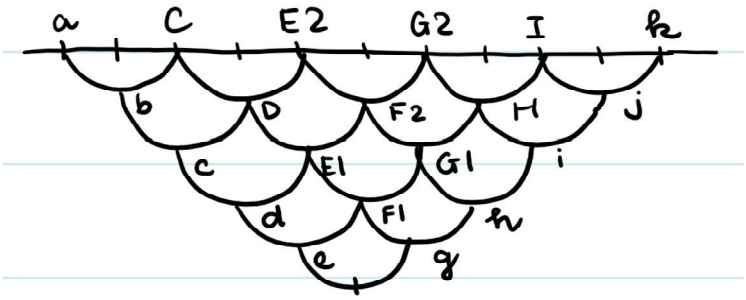
In[]:=
```
FullSimplify[(1 / 39 916 800) (3 628 800 n - 10 628 640 n^2 + 12 753 576 n^3 -
    8 409 500 n^4 + 3 416 930 n^5 - 902 055 n^6 + 157 773 n^7 - 18 150 n^8 + 1320 n^9 - 55 n^10 + n^11)]
```

Out[]=
$$\frac{1}{39\,916\,800}(-10+n)(-9+n)(-8+n)(-7+n)(-6+n)(-5+n)(-4+n)(-3+n)(-2+n)(-1+n)n$$

In[]:=
```
graph =
```



Out[]=



In[]:=
```
Sum[(C - a - 1) * (E2 - C - 1) * (G2 - E2 - 1) * (I - G2 - 1) * (k - I - 1) * (g - e - 1),
 {a, 1, n - 10}, {C, a + 2, n - 8}, {E2, C + 2, n - 6}, {G2, E2 + 2, n - 4}, {I, G2 + 2, n - 2},
 {k, I + 2, n}, {b, a + 1, C - 1}, {D, C + 1, E2 - 1}, {F2, E2 + 1, G2 - 1}, {H, G2 + 1, I - 1},
 {j, I + 1, k - 1}, {c, b + 1, D - 1}, {E1, D + 1, F2 - 1}, {G1, F2 + 1, H - 1}, {i, H + 1, j - 1},
 {d, c + 1, E1 - 1}, {F1, E1 + 1, G1 - 1}, {h, G1 + 1, i - 1}, {e, d + 1, F1 - 1}, {g, F1 + 1, h - 1}]
```

Out[]=
$$\left(-559\,121\,323\,622\,400\,000\,n + 3\,401\,517\,236\,060\,160\,000\,n^2 - 9\,698\,393\,279\,559\,168\,000\,n^3 + 17\,304\,343\,134\,810\,854\,400\,n^4 - 21\,749\,506\,690\,507\,787\,520\,n^5 + 20\,539\,198\,819\,797\,499\,584\,n^6 - 15\,171\,179\,338\,268\,712\,000\,n^7 + 9\,005\,548\,196\,457\,282\,800\,n^8 - 4\,378\,489\,347\,548\,646\,000\,n^9 + 1\,767\,694\,037\,346\,140\,420\,n^{10} - 598\,465\,980\,994\,381\,500\,n^{11} + 171\,092\,005\,786\,051\,025\,n^{12} - 41\,490\,587\,106\,783\,600\,n^{13} + 8\,555\,985\,678\,275\,480\,n^{14} - 1\,501\,152\,570\,630\,000\,n^{15} + 223\,775\,892\,980\,375\,n^{16} - 28\,245\,100\,075\,500\,n^{17} + 3\,001\,244\,399\,450\,n^{18} - 266\,150\,197\,500\,n^{19} + 19\,454\,882\,975\,n^{20} - 1\,151\,706\,600\,n^{21} + 53\,825\,060\,n^{22} - 1\,911\,000\,n^{23} + 48\,425\,n^{24} - 780\,n^{25} + 6\,n^{26}\right) \Big/ 104\,396\,352\,425\,164\,800\,000$$

In[]:=
```
FullSimplify[%5]
```

Out[]=
$$\left((-10+n)(-9+n)(-8+n)^2(-7+n)^2(-6+n)^3(-5+n)^4(-4+n)^3(-3+n)^2(-2+n)^2(-1+n)n(6369+(-10+n)n(395+6(-10+n)n))\right) \Big/ 104\,396\,352\,425\,164\,800\,000$$

In[ ]:=
```
%6 / %3
```

Out[ ]=
$$\frac{1}{2\,615\,348\,736\,000}(-8+n)\,(-7+n)\,(-6+n)^2\,(-5+n)^3\,(-4+n)^2\,(-3+n)\,(-2+n)\,(6369+(-10+n)\,n\,(395+6\,(-10+n)\,n))$$

In[ ]:=
```
Expand[ (-8 + n) (-7 + n) (-6 + n)^2 (-5 + n)^3
  (-4 + n)^2 (-3 + n) (-2 + n) (6369 + (-10 + n) n (395 + 6 (-10 + n) n))]
```

Out[ ]=
$$-154\,078\,848\,000 + 486\,074\,908\,800\,n - 707\,402\,381\,760\,n^2 + 631\,255\,103\,784\,n^3 - 386\,929\,514\,500\,n^4 + 172\,820\,905\,130\,n^5 - 58\,182\,645\,455\,n^6 + 15\,052\,116\,013\,n^7 - 3\,020\,035\,425\,n^8 + 470\,350\,815\,n^9 - 56\,440\,835\,n^{10} + 5\,127\,697\,n^{11} - 341\,575\,n^{12} + 15\,755\,n^{13} - 450\,n^{14} + 6\,n^{15}$$

In[ ]:=
```
(-154078848000*f(x)+486074908800*x*D[ f(x),x]-707402381760*x*D[x*
 D[ f(x),x],x])/2615348736000
```
```
(-154 078 848 000 * f[x] + 486 074 908 800 * x * D[f[x], x] -
   707 402 381 760 * x * D[x * D[f[x], x], x]) / 2 615 348 736 000
```

Out[ ]=
$$\frac{1}{2\,615\,348\,736\,000}\left(-\frac{154\,078\,848\,000\,x^{13}}{(1-x)^{14}} + 486\,074\,908\,800\,x\left(\frac{13\,x^{12}}{(1-x)^{14}} + \frac{14\,x^{13}}{(1-x)^{15}}\right) - 707\,402\,381\,760\,x\left(\frac{13\,x^{12}}{(1-x)^{14}} + \frac{14\,x^{13}}{(1-x)^{15}} + x\left(\frac{156\,x^{11}}{(1-x)^{14}} + \frac{364\,x^{12}}{(1-x)^{15}} + \frac{210\,x^{13}}{(1-x)^{16}}\right)\right)\right)$$

In[ ]:=
```
(631255103784*x*D[x*D[x*D[ f(x),x],x],x]-386929514500*x*D[x*D[x*D[
 x*D[ f(x),x],x],x],x])/2615348736000
```
```
(631 255 103 784 * x * D[x * D[x * D[f[x], x], x], x] -
   386 929 514 500 * x * D[x * D[x * D[x * D[f[x], x], x], x], x]) / 2 615 348 736 000
```

Out[ ]=
$$\frac{1}{2\,615\,348\,736\,000}\left(631\,255\,103\,784\,x\left(\frac{13\,x^{12}}{(1-x)^{14}} + \frac{14\,x^{13}}{(1-x)^{15}} + x\left(\frac{156\,x^{11}}{(1-x)^{14}} + \frac{364\,x^{12}}{(1-x)^{15}} + \frac{210\,x^{13}}{(1-x)^{16}}\right) + x\left(\frac{312\,x^{11}}{(1-x)^{14}} + \frac{728\,x^{12}}{(1-x)^{15}} + \frac{420\,x^{13}}{(1-x)^{16}} + x\left(\frac{1716\,x^{10}}{(1-x)^{14}} + \frac{6552\,x^{11}}{(1-x)^{15}} + \frac{8190\,x^{12}}{(1-x)^{16}} + \frac{3360\,x^{13}}{(1-x)^{17}}\right)\right)\right) - 386\,929\,514\,500\,x\left(\frac{13\,x^{12}}{(1-x)^{14}} + \frac{14\,x^{13}}{(1-x)^{15}} + x\left(\frac{156\,x^{11}}{(1-x)^{14}} + \frac{364\,x^{12}}{(1-x)^{15}} + \frac{210\,x^{13}}{(1-x)^{16}}\right) + x\left(\frac{312\,x^{11}}{(1-x)^{14}} + \frac{728\,x^{12}}{(1-x)^{15}} + \frac{420\,x^{13}}{(1-x)^{16}} + x\left(\frac{1716\,x^{10}}{(1-x)^{14}} + \frac{6552\,x^{11}}{(1-x)^{15}} + \frac{8190\,x^{12}}{(1-x)^{16}} + \frac{3360\,x^{13}}{(1-x)^{17}}\right)\right) + x\left(\frac{624\,x^{11}}{(1-x)^{14}} + \frac{1456\,x^{12}}{(1-x)^{15}} + \frac{840\,x^{13}}{(1-x)^{16}} + 2\,x\left(\frac{1716\,x^{10}}{(1-x)^{14}} + \frac{6552\,x^{11}}{(1-x)^{15}} + \frac{8190\,x^{12}}{(1-x)^{16}} + \frac{3360\,x^{13}}{(1-x)^{17}}\right) + x\left(\frac{5148\,x^{10}}{(1-x)^{14}} + \frac{19\,656\,x^{11}}{(1-x)^{15}} + \frac{24\,570\,x^{12}}{(1-x)^{16}} + \frac{10\,080\,x^{13}}{(1-x)^{17}} + x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}} + \frac{96\,096\,x^{10}}{(1-x)^{15}} + \frac{196\,560\,x^{11}}{(1-x)^{16}} + \frac{174\,720\,x^{12}}{(1-x)^{17}} + \frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)\right)\right)\right)$$

In[ ]:=
```
(172820905130*x*D[x*D[x*D[x*D[x*D[ f(x),x],x],x],x],x]-58182645455*
 x*D[x*D[x*D[x*D[x*D[x*D[ f(x),x],x],x],x],x],x])/2615348736000
```

```
(172 820 905 130 * x * D[x * D[x * D[x * D[x * D[f[x], x], x], x], x], x] -
   58 182 645 455 * x * D[x * D[x * D[x * D[x * D[x * D[f[x], x], x], x], x], x], x]) / 2 615 348 736 000
```

Out[ ]=

$$\frac{1}{2\,615\,348\,736\,000}\left(172\,820\,905\,130\,x\left(\frac{13\,x^{12}}{(1-x)^{14}}+\frac{14\,x^{13}}{(1-x)^{15}}+x\left(\frac{156\,x^{11}}{(1-x)^{14}}+\frac{364\,x^{12}}{(1-x)^{15}}+\frac{210\,x^{13}}{(1-x)^{16}}\right)+\right.\right.$$
$$x\left(\frac{312\,x^{11}}{(1-x)^{14}}+\frac{728\,x^{12}}{(1-x)^{15}}+\frac{420\,x^{13}}{(1-x)^{16}}+x\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)\right)+$$
$$x\left(\frac{624\,x^{11}}{(1-x)^{14}}+\frac{1456\,x^{12}}{(1-x)^{15}}+\frac{840\,x^{13}}{(1-x)^{16}}+2\,x\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+\right.$$
$$x\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+\right.$$
$$\left.\left.\left.x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)\right)+$$
$$x\left(\frac{1248\,x^{11}}{(1-x)^{14}}+\frac{2912\,x^{12}}{(1-x)^{15}}+\frac{1680\,x^{13}}{(1-x)^{16}}+4\,x\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+\right.$$
$$2\,x\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+\right.$$
$$\left.x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)+$$
$$x\left(\frac{12\,012\,x^{10}}{(1-x)^{14}}+\frac{45\,864\,x^{11}}{(1-x)^{15}}+\frac{57\,330\,x^{12}}{(1-x)^{16}}+\frac{23\,520\,x^{13}}{(1-x)^{17}}+\right.$$
$$3\,x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+$$
$$2\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+$$
$$x\left(\frac{68\,640\,x^{9}}{(1-x)^{14}}+\frac{384\,384\,x^{10}}{(1-x)^{15}}+\frac{786\,240\,x^{11}}{(1-x)^{16}}+\frac{698\,880\,x^{12}}{(1-x)^{17}}+\frac{228\,480\,x^{13}}{(1-x)^{18}}+x\left(\frac{154\,440\,x^{8}}{(1-x)^{14}}+\right.\right.$$
$$\left.\left.\left.\left.\left.\frac{1\,201\,200\,x^{9}}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)\right)\right)\right)\right)-$$
$$58\,182\,645\,455\,x\left(\frac{13\,x^{12}}{(1-x)^{14}}+\frac{14\,x^{13}}{(1-x)^{15}}+x\left(\frac{156\,x^{11}}{(1-x)^{14}}+\frac{364\,x^{12}}{(1-x)^{15}}+\frac{210\,x^{13}}{(1-x)^{16}}\right)+\right.$$
$$\left.x\left(\frac{312\,x^{11}}{(1-x)^{14}}+\frac{728\,x^{12}}{(1-x)^{15}}+\frac{420\,x^{13}}{(1-x)^{16}}+x\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)\right)+\right.$$

$$x\left(\frac{624\,x^{11}}{(1-x)^{14}}+\frac{1456\,x^{12}}{(1-x)^{15}}+\frac{840\,x^{13}}{(1-x)^{16}}+2\,x\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+x\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)\right)+x\left(\frac{1248\,x^{11}}{(1-x)^{14}}+\frac{2912\,x^{12}}{(1-x)^{15}}+\frac{1680\,x^{13}}{(1-x)^{16}}+4\,x\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+2\,x\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)+x\left(\frac{12\,012\,x^{10}}{(1-x)^{14}}+\frac{45\,864\,x^{11}}{(1-x)^{15}}+\frac{57\,330\,x^{12}}{(1-x)^{16}}+\frac{23\,520\,x^{13}}{(1-x)^{17}}+3\,x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+2\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+x\left(\frac{68\,640\,x^{9}}{(1-x)^{14}}+\frac{384\,384\,x^{10}}{(1-x)^{15}}+\frac{786\,240\,x^{11}}{(1-x)^{16}}+\frac{698\,880\,x^{12}}{(1-x)^{17}}+\frac{228\,480\,x^{13}}{(1-x)^{18}}+x\left(\frac{154\,440\,x^{8}}{(1-x)^{14}}+\frac{1\,201\,200\,x^{9}}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)\right)\right)\right)+x\left(\frac{2496\,x^{11}}{(1-x)^{14}}+\frac{5824\,x^{12}}{(1-x)^{15}}+\frac{3360\,x^{13}}{(1-x)^{16}}+8\,x\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+4\,x\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)+2\,x\left(\frac{12\,012\,x^{10}}{(1-x)^{14}}+\frac{45\,864\,x^{11}}{(1-x)^{15}}+\frac{57\,330\,x^{12}}{(1-x)^{16}}+\frac{23\,520\,x^{13}}{(1-x)^{17}}+3\,x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+2\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+x\left(\frac{68\,640\,x^{9}}{(1-x)^{14}}+\frac{384\,384\,x^{10}}{(1-x)^{15}}+\frac{786\,240\,x^{11}}{(1-x)^{16}}+\frac{698\,880\,x^{12}}{(1-x)^{17}}+\frac{228\,480\,x^{13}}{(1-x)^{18}}+x\left(\frac{154\,440\,x^{8}}{(1-x)^{14}}+\right.\right.\right.\right.\right.\right.$$

$$\frac{1\,201\,200\,x^9}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\Bigg)\Bigg)\Bigg)+$$
$$x\left(\frac{25\,740\,x^{10}}{(1-x)^{14}}+\frac{98\,280\,x^{11}}{(1-x)^{15}}+\frac{122\,850\,x^{12}}{(1-x)^{16}}+\frac{50\,400\,x^{13}}{(1-x)^{17}}+7\,x\left(\frac{17\,160\,x^9}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\right.\right.$$
$$\left.\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+6\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\right.$$
$$\left.\frac{3360\,x^{13}}{(1-x)^{17}}\right)+3\,x\left(\frac{68\,640\,x^9}{(1-x)^{14}}+\frac{384\,384\,x^{10}}{(1-x)^{15}}+\frac{786\,240\,x^{11}}{(1-x)^{16}}+\frac{698\,880\,x^{12}}{(1-x)^{17}}+\frac{228\,480\,x^{13}}{(1-x)^{18}}+x\right.$$
$$\left(\frac{154\,440\,x^8}{(1-x)^{14}}+\frac{1\,201\,200\,x^9}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\right.$$
$$\left.\left.\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)\right)+2\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+x\right.$$
$$\left.\left.\left(\frac{17\,160\,x^9}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)+\right.$$
$$x\left(\frac{188\,760\,x^9}{(1-x)^{14}}+\frac{1\,057\,056\,x^{10}}{(1-x)^{15}}+\frac{2\,162\,160\,x^{11}}{(1-x)^{16}}+\frac{1\,921\,920\,x^{12}}{(1-x)^{17}}+\frac{628\,320\,x^{13}}{(1-x)^{18}}+4\right.$$
$$x\left(\frac{154\,440\,x^8}{(1-x)^{14}}+\frac{1\,201\,200\,x^9}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\right.$$
$$\left.\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)+5\left(\frac{17\,160\,x^9}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\right.$$
$$\left.\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+x\left(\frac{772\,200\,x^8}{(1-x)^{14}}+\frac{6\,006\,000\,x^9}{(1-x)^{15}}+\frac{18\,018\,000\,x^{10}}{(1-x)^{16}}+\frac{26\,208\,000\,x^{11}}{(1-x)^{17}}+\right.$$
$$\frac{18\,564\,000\,x^{12}}{(1-x)^{18}}+\frac{5\,140\,800\,x^{13}}{(1-x)^{19}}+x\left(\frac{1\,235\,520\,x^7}{(1-x)^{14}}+\frac{12\,972\,960\,x^8}{(1-x)^{15}}+\frac{54\,054\,000\,x^9}{(1-x)^{16}}+\right.$$
$$\left.\left.\left.\left.\left.\left.\frac{115\,315\,200\,x^{10}}{(1-x)^{17}}+\frac{133\,660\,800\,x^{11}}{(1-x)^{18}}+\frac{80\,196\,480\,x^{12}}{(1-x)^{19}}+\frac{19\,535\,040\,x^{13}}{(1-x)^{20}}\right)\right)\right)\right)\right)\right)$$

In[•]:=

```
(15052116013*x*D[x*D[x*D[x*D[x*D[x*D[x*D[ f(x),x],x],x],x],x],x],x])/
2615348736000
```

```
(15 052 116 013 * x * D[x * D[x * D[x * D[x * D[x * D[x * D[f[x], x], x], x], x], x], x], x]) /
 2 615 348 736 000
```

Out[•]=

$$\frac{1}{237\,758\,976\,000}\times 1\,368\,374\,183\,x\left(\frac{13\,x^{12}}{(1-x)^{14}}+\frac{14\,x^{13}}{(1-x)^{15}}+x\left(\frac{156\,x^{11}}{(1-x)^{14}}+\frac{364\,x^{12}}{(1-x)^{15}}+\frac{210\,x^{13}}{(1-x)^{16}}\right)+\right.$$
$$\left.x\left(\frac{312\,x^{11}}{(1-x)^{14}}+\frac{728\,x^{12}}{(1-x)^{15}}+\frac{420\,x^{13}}{(1-x)^{16}}+x\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)\right)+\right.$$

$$x\left(\frac{624\,x^{11}}{(1-x)^{14}}+\frac{1456\,x^{12}}{(1-x)^{15}}+\frac{840\,x^{13}}{(1-x)^{16}}+2\,x\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+\right.$$
$$x\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+\right.$$
$$\left.\left.\left.x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)\right)+$$
$$x\left(\frac{1248\,x^{11}}{(1-x)^{14}}+\frac{2912\,x^{12}}{(1-x)^{15}}+\frac{1680\,x^{13}}{(1-x)^{16}}+4\,x\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+\right.$$
$$2\,x\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+\right.$$
$$\left.x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)+$$
$$x\left(\frac{12\,012\,x^{10}}{(1-x)^{14}}+\frac{45\,864\,x^{11}}{(1-x)^{15}}+\frac{57\,330\,x^{12}}{(1-x)^{16}}+\frac{23\,520\,x^{13}}{(1-x)^{17}}+3\,x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\right.\right.$$
$$\left.\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+2\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+$$
$$x\left(\frac{68\,640\,x^{9}}{(1-x)^{14}}+\frac{384\,384\,x^{10}}{(1-x)^{15}}+\frac{786\,240\,x^{11}}{(1-x)^{16}}+\frac{698\,880\,x^{12}}{(1-x)^{17}}+\frac{228\,480\,x^{13}}{(1-x)^{18}}+x\left(\frac{154\,440\,x^{8}}{(1-x)^{14}}+\right.\right.$$
$$\left.\left.\left.\left.\frac{1\,201\,200\,x^{9}}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)\right)\right)\right)+$$
$$x\left(\frac{2496\,x^{11}}{(1-x)^{14}}+\frac{5824\,x^{12}}{(1-x)^{15}}+\frac{3360\,x^{13}}{(1-x)^{16}}+8\,x\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+\right.$$
$$4\,x\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+\right.$$
$$\left.x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)+2\,x$$
$$\left(\frac{12\,012\,x^{10}}{(1-x)^{14}}+\frac{45\,864\,x^{11}}{(1-x)^{15}}+\frac{57\,330\,x^{12}}{(1-x)^{16}}+\frac{23\,520\,x^{13}}{(1-x)^{17}}+3\,x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\right.\right.$$
$$\left.\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+2\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+$$
$$x\left(\frac{68\,640\,x^{9}}{(1-x)^{14}}+\frac{384\,384\,x^{10}}{(1-x)^{15}}+\frac{786\,240\,x^{11}}{(1-x)^{16}}+\frac{698\,880\,x^{12}}{(1-x)^{17}}+\frac{228\,480\,x^{13}}{(1-x)^{18}}+x\left(\frac{154\,440\,x^{8}}{(1-x)^{14}}+\right.\right.$$
$$\left.\left.\left.\left.\frac{1\,201\,200\,x^{9}}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)\right)\right)\right)+x$$
$$\left(\frac{25\,740\,x^{10}}{(1-x)^{14}}+\frac{98\,280\,x^{11}}{(1-x)^{15}}+\frac{122\,850\,x^{12}}{(1-x)^{16}}+\frac{50\,400\,x^{13}}{(1-x)^{17}}+7\,x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\right.\right.$$

$$\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\Bigg)+6\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+$$
$$3x\left(\frac{68\,640\,x^{9}}{(1-x)^{14}}+\frac{384\,384\,x^{10}}{(1-x)^{15}}+\frac{786\,240\,x^{11}}{(1-x)^{16}}+\frac{698\,880\,x^{12}}{(1-x)^{17}}+\frac{228\,480\,x^{13}}{(1-x)^{18}}+x\left(\frac{154\,440\,x^{8}}{(1-x)^{14}}+\right.\right.$$
$$\left.\left.\frac{1\,201\,200\,x^{9}}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)\right)+$$
$$2\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\right.\right.$$
$$\left.\left.\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)+$$
$$x\left(\frac{188\,760\,x^{9}}{(1-x)^{14}}+\frac{1\,057\,056\,x^{10}}{(1-x)^{15}}+\frac{2\,162\,160\,x^{11}}{(1-x)^{16}}+\frac{1\,921\,920\,x^{12}}{(1-x)^{17}}+\frac{628\,320\,x^{13}}{(1-x)^{18}}+\right.$$
$$4x\left(\frac{154\,440\,x^{8}}{(1-x)^{14}}+\frac{1\,201\,200\,x^{9}}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\right.$$
$$\left.\left.\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)+5\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+\right.$$
$$x\left(\frac{772\,200\,x^{8}}{(1-x)^{14}}+\frac{6\,006\,000\,x^{9}}{(1-x)^{15}}+\frac{18\,018\,000\,x^{10}}{(1-x)^{16}}+\frac{26\,208\,000\,x^{11}}{(1-x)^{17}}+\frac{18\,564\,000\,x^{12}}{(1-x)^{18}}+\right.$$
$$\frac{5\,140\,800\,x^{13}}{(1-x)^{19}}+x\left(\frac{1\,235\,520\,x^{7}}{(1-x)^{14}}+\frac{12\,972\,960\,x^{8}}{(1-x)^{15}}+\frac{54\,054\,000\,x^{9}}{(1-x)^{16}}+\right.$$
$$\left.\left.\left.\left.\left.\frac{115\,315\,200\,x^{10}}{(1-x)^{17}}+\frac{133\,660\,800\,x^{11}}{(1-x)^{18}}+\frac{80\,196\,480\,x^{12}}{(1-x)^{19}}+\frac{19\,535\,040\,x^{13}}{(1-x)^{20}}\right)\right)\right)\right)\right)+$$
$$x\left(\frac{4992\,x^{11}}{(1-x)^{14}}+\frac{11\,648\,x^{12}}{(1-x)^{15}}+\frac{6720\,x^{13}}{(1-x)^{16}}+16x\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+\right.$$
$$8x\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+\right.$$
$$\left.\left.x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)+\right.$$
$$4x\left(\frac{12\,012\,x^{10}}{(1-x)^{14}}+\frac{45\,864\,x^{11}}{(1-x)^{15}}+\frac{57\,330\,x^{12}}{(1-x)^{16}}+\frac{23\,520\,x^{13}}{(1-x)^{17}}+\right.$$
$$3x\left(\frac{17\,160\,x^{9}}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+$$
$$2\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+$$
$$x\left(\frac{68\,640\,x^{9}}{(1-x)^{14}}+\frac{384\,384\,x^{10}}{(1-x)^{15}}+\frac{786\,240\,x^{11}}{(1-x)^{16}}+\frac{698\,880\,x^{12}}{(1-x)^{17}}+\frac{228\,480\,x^{13}}{(1-x)^{18}}+x\left(\frac{154\,440\,x^{8}}{(1-x)^{14}}+\right.\right.$$

$$\frac{1\,201\,200\,x^9}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\Bigg)\Bigg)\Bigg)+$$

$$2x\left(\frac{25\,740\,x^{10}}{(1-x)^{14}}+\frac{98\,280\,x^{11}}{(1-x)^{15}}+\frac{122\,850\,x^{12}}{(1-x)^{16}}+\frac{50\,400\,x^{13}}{(1-x)^{17}}+\right.$$

$$7x\left(\frac{17\,160\,x^9}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+$$

$$6\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+$$

$$3x\left(\frac{68\,640\,x^9}{(1-x)^{14}}+\frac{384\,384\,x^{10}}{(1-x)^{15}}+\frac{786\,240\,x^{11}}{(1-x)^{16}}+\frac{698\,880\,x^{12}}{(1-x)^{17}}+\frac{228\,480\,x^{13}}{(1-x)^{18}}+x\left(\frac{154\,440\,x^8}{(1-x)^{14}}+\right.\right.$$

$$\left.\left.\frac{1\,201\,200\,x^9}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)\right)+$$

$$2\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+x\left(\frac{17\,160\,x^9}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\right.\right.$$

$$\left.\left.\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)+$$

$$x\left(\frac{188\,760\,x^9}{(1-x)^{14}}+\frac{1\,057\,056\,x^{10}}{(1-x)^{15}}+\frac{2\,162\,160\,x^{11}}{(1-x)^{16}}+\frac{1\,921\,920\,x^{12}}{(1-x)^{17}}+\frac{628\,320\,x^{13}}{(1-x)^{18}}+\right.$$

$$4x\left(\frac{154\,440\,x^8}{(1-x)^{14}}+\frac{1\,201\,200\,x^9}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\right.$$

$$\left.\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)+5\left(\frac{17\,160\,x^9}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+$$

$$x\left(\frac{772\,200\,x^8}{(1-x)^{14}}+\frac{6\,006\,000\,x^9}{(1-x)^{15}}+\frac{18\,018\,000\,x^{10}}{(1-x)^{16}}+\frac{26\,208\,000\,x^{11}}{(1-x)^{17}}+\frac{18\,564\,000\,x^{12}}{(1-x)^{18}}+\right.$$

$$\frac{5\,140\,800\,x^{13}}{(1-x)^{19}}+x\left(\frac{1\,235\,520\,x^7}{(1-x)^{14}}+\frac{12\,972\,960\,x^8}{(1-x)^{15}}+\frac{54\,054\,000\,x^9}{(1-x)^{16}}+\right.$$

$$\left.\left.\left.\left.\frac{115\,315\,200\,x^{10}}{(1-x)^{17}}+\frac{133\,660\,800\,x^{11}}{(1-x)^{18}}+\frac{80\,196\,480\,x^{12}}{(1-x)^{19}}+\frac{19\,535\,040\,x^{13}}{(1-x)^{20}}\right)\right)\right)\right)+$$

$$x\left(\frac{53\,196\,x^{10}}{(1-x)^{14}}+\frac{203\,112\,x^{11}}{(1-x)^{15}}+\frac{253\,890\,x^{12}}{(1-x)^{16}}+\frac{104\,160\,x^{13}}{(1-x)^{17}}+15x\left(\frac{17\,160\,x^9}{(1-x)^{14}}+\right.\right.$$

$$\left.\left.\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+\right.$$

$$14\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+$$

$$7x\left(\frac{68\,640\,x^9}{(1-x)^{14}}+\frac{384\,384\,x^{10}}{(1-x)^{15}}+\frac{786\,240\,x^{11}}{(1-x)^{16}}+\frac{698\,880\,x^{12}}{(1-x)^{17}}+\frac{228\,480\,x^{13}}{(1-x)^{18}}+x\left(\frac{154\,440\,x^8}{(1-x)^{14}}+\right.\right.$$

$$\frac{1\,201\,200\,x^9}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\Bigg)\Bigg)+$$

$$6\left(\frac{5148\,x^{10}}{(1-x)^{14}}+\frac{19\,656\,x^{11}}{(1-x)^{15}}+\frac{24\,570\,x^{12}}{(1-x)^{16}}+\frac{10\,080\,x^{13}}{(1-x)^{17}}+x\left(\frac{17\,160\,x^9}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\right.\right.$$

$$\left.\left.\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)\right)+$$

$$3x\left(\frac{188\,760\,x^9}{(1-x)^{14}}+\frac{1\,057\,056\,x^{10}}{(1-x)^{15}}+\frac{2\,162\,160\,x^{11}}{(1-x)^{16}}+\frac{1\,921\,920\,x^{12}}{(1-x)^{17}}+\frac{628\,320\,x^{13}}{(1-x)^{18}}+\right.$$

$$4x\left(\frac{154\,440\,x^8}{(1-x)^{14}}+\frac{1\,201\,200\,x^9}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\right.$$

$$\left.\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)+5\left(\frac{17\,160\,x^9}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+$$

$$x\left(\frac{772\,200\,x^8}{(1-x)^{14}}+\frac{6\,006\,000\,x^9}{(1-x)^{15}}+\frac{18\,018\,000\,x^{10}}{(1-x)^{16}}+\frac{26\,208\,000\,x^{11}}{(1-x)^{17}}+\frac{18\,564\,000\,x^{12}}{(1-x)^{18}}+\right.$$

$$\frac{5\,140\,800\,x^{13}}{(1-x)^{19}}+x\left(\frac{1\,235\,520\,x^7}{(1-x)^{14}}+\frac{12\,972\,960\,x^8}{(1-x)^{15}}+\frac{54\,054\,000\,x^9}{(1-x)^{16}}+\frac{115\,315\,200\,x^{10}}{(1-x)^{17}}+\right.$$

$$\left.\left.\left.\frac{133\,660\,800\,x^{11}}{(1-x)^{18}}+\frac{80\,196\,480\,x^{12}}{(1-x)^{19}}+\frac{19\,535\,040\,x^{13}}{(1-x)^{20}}\right)\right)\right)+2\left(\frac{12\,012\,x^{10}}{(1-x)^{14}}+\right.$$

$$\frac{45\,864\,x^{11}}{(1-x)^{15}}+\frac{57\,330\,x^{12}}{(1-x)^{16}}+\frac{23\,520\,x^{13}}{(1-x)^{17}}+3x\left(\frac{17\,160\,x^9}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\right.$$

$$\left.\frac{174\,720\,x^{12}}{(1-x)^{17}}+\frac{57\,120\,x^{13}}{(1-x)^{18}}\right)+2\left(\frac{1716\,x^{10}}{(1-x)^{14}}+\frac{6552\,x^{11}}{(1-x)^{15}}+\frac{8190\,x^{12}}{(1-x)^{16}}+\frac{3360\,x^{13}}{(1-x)^{17}}\right)+$$

$$x\left(\frac{68\,640\,x^9}{(1-x)^{14}}+\frac{384\,384\,x^{10}}{(1-x)^{15}}+\frac{786\,240\,x^{11}}{(1-x)^{16}}+\frac{698\,880\,x^{12}}{(1-x)^{17}}+\frac{228\,480\,x^{13}}{(1-x)^{18}}+x\left(\frac{154\,440\,x^8}{(1-x)^{14}}+\right.\right.$$

$$\left.\left.\left.\frac{1\,201\,200\,x^9}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)\right)\right)+$$

$$x\left(\frac{446\,160\,x^9}{(1-x)^{14}}+\frac{2\,498\,496\,x^{10}}{(1-x)^{15}}+\frac{5\,110\,560\,x^{11}}{(1-x)^{16}}+\frac{4\,542\,720\,x^{12}}{(1-x)^{17}}+\frac{1\,485\,120\,x^{13}}{(1-x)^{18}}+\right.$$

$$11x\left(\frac{154\,440\,x^8}{(1-x)^{14}}+\frac{1\,201\,200\,x^9}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\right.$$

$$\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\Bigg)+18\left(\frac{17\,160\,x^9}{(1-x)^{14}}+\frac{96\,096\,x^{10}}{(1-x)^{15}}+\frac{196\,560\,x^{11}}{(1-x)^{16}}+\frac{174\,720\,x^{12}}{(1-x)^{17}}+\right.$$

$$\frac{57\,120\,x^{13}}{(1-x)^{18}}\Bigg)+4x\left(\frac{772\,200\,x^8}{(1-x)^{14}}+\frac{6\,006\,000\,x^9}{(1-x)^{15}}+\frac{18\,018\,000\,x^{10}}{(1-x)^{16}}+\frac{26\,208\,000\,x^{11}}{(1-x)^{17}}+\right.$$

$$\frac{18\,564\,000\,x^{12}}{(1-x)^{18}}+\frac{5\,140\,800\,x^{13}}{(1-x)^{19}}+x\left(\frac{1\,235\,520\,x^7}{(1-x)^{14}}+\frac{12\,972\,960\,x^8}{(1-x)^{15}}+\frac{54\,054\,000\,x^9}{(1-x)^{16}}+\right.$$

$$\frac{115\,315\,200\,x^{10}}{(1-x)^{17}}+\frac{133\,660\,800\,x^{11}}{(1-x)^{18}}+\frac{80\,196\,480\,x^{12}}{(1-x)^{19}}+\frac{19\,535\,040\,x^{13}}{(1-x)^{20}}\Bigg)\Bigg)+$$
$$5\left(\frac{68\,640\,x^{9}}{(1-x)^{14}}+\frac{384\,384\,x^{10}}{(1-x)^{15}}+\frac{786\,240\,x^{11}}{(1-x)^{16}}+\frac{698\,880\,x^{12}}{(1-x)^{17}}+\frac{228\,480\,x^{13}}{(1-x)^{18}}+x\left(\frac{154\,440\,x^{8}}{(1-x)^{14}}+\right.\right.$$
$$\left.\left.\frac{1\,201\,200\,x^{9}}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)\right)+$$
$$x\left(\frac{2\,471\,040\,x^{8}}{(1-x)^{14}}+\frac{19\,219\,200\,x^{9}}{(1-x)^{15}}+\frac{57\,657\,600\,x^{10}}{(1-x)^{16}}+\frac{83\,865\,600\,x^{11}}{(1-x)^{17}}+\frac{59\,404\,800\,x^{12}}{(1-x)^{18}}+\right.$$
$$\frac{16\,450\,560\,x^{13}}{(1-x)^{19}}+5\,x\left(\frac{1\,235\,520\,x^{7}}{(1-x)^{14}}+\frac{12\,972\,960\,x^{8}}{(1-x)^{15}}+\frac{54\,054\,000\,x^{9}}{(1-x)^{16}}+\frac{115\,315\,200\,x^{10}}{(1-x)^{17}}+\right.$$
$$\left.\frac{133\,660\,800\,x^{11}}{(1-x)^{18}}+\frac{80\,196\,480\,x^{12}}{(1-x)^{19}}+\frac{19\,535\,040\,x^{13}}{(1-x)^{20}}\right)+9\left(\frac{154\,440\,x^{8}}{(1-x)^{14}}+\right.$$
$$\left.\frac{1\,201\,200\,x^{9}}{(1-x)^{15}}+\frac{3\,603\,600\,x^{10}}{(1-x)^{16}}+\frac{5\,241\,600\,x^{11}}{(1-x)^{17}}+\frac{3\,712\,800\,x^{12}}{(1-x)^{18}}+\frac{1\,028\,160\,x^{13}}{(1-x)^{19}}\right)+$$
$$x\left(\frac{7\,413\,120\,x^{7}}{(1-x)^{14}}+\frac{77\,837\,760\,x^{8}}{(1-x)^{15}}+\frac{324\,324\,000\,x^{9}}{(1-x)^{16}}+\frac{691\,891\,200\,x^{10}}{(1-x)^{17}}+\right.$$
$$\frac{801\,964\,800\,x^{11}}{(1-x)^{18}}+\frac{481\,178\,880\,x^{12}}{(1-x)^{19}}+\frac{117\,210\,240\,x^{13}}{(1-x)^{20}}+x\left(\frac{8\,648\,640\,x^{6}}{(1-x)^{14}}+\right.$$
$$\frac{121\,080\,960\,x^{7}}{(1-x)^{15}}+\frac{681\,080\,400\,x^{8}}{(1-x)^{16}}+\frac{2\,018\,016\,000\,x^{9}}{(1-x)^{17}}+\frac{3\,430\,627\,200\,x^{10}}{(1-x)^{18}}+$$
$$\left.\left.\left.\frac{3\,368\,252\,160\,x^{11}}{(1-x)^{19}}+\frac{1\,777\,688\,640\,x^{12}}{(1-x)^{20}}+\frac{390\,700\,800\,x^{13}}{(1-x)^{21}}\right)\right)\right)\right)\right)\right)$$

In[•]:=

```
(-3020035425*x*D[x*D[x*D[x*D[x*D[x*D[x*D[ f(x),x],x],x],x],x],x],
 x],x])/2615348736000
```

```
(-3 020 035 425 * x * D[x * D[x * D[x * D[x * D[x * D[x * D[f[x], x], x], x], x], x], x], x]) /
 2 615 348 736 000
```

Out[•]=

$$-\frac{1}{3\,170\,119\,680}\times 3\,660\,649\,x$$
$$\left(\frac{13\,x^{12}}{(1-x)^{14}}+\cdots 7\cdots+x\left(\frac{9984\,x^{11}}{(1-x)^{14}}+\cdots 7\cdots+x\left(\frac{108\,108\,x^{10}}{(1-x)^{14}}+\cdots 11\cdots+x\left(\frac{978\,120\,x^{9}}{(1-x)^{14}}+\right.\right.\right.$$
$$\left.\left.\left.\cdots 10\cdots+x\left(\frac{6\,486\,480\,x^{8}}{(1-x)^{14}}+\frac{\cdots 1\cdots}{\cdots 1\cdots^{15}}+\cdots 7\cdots+9\cdots 1\cdots+x\left(\frac{27\,181\,440\,x^{7}}{(1-x)^{14}}+\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\cdots 8\cdots+x\left(\frac{60\,540\,480\,x^{6}}{(1-x)^{14}}+\frac{847\,566\,720\,x^{7}}{(1-x)^{15}}+\cdots 5\cdots+\frac{2\,734\,905\,600\,\cdots 1\cdots}{\cdots 1\cdots^{21}}+\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\left.x\left(\frac{51\,891\,840\,x^{5}}{(1-x)^{14}}+\cdots 7\cdots+\frac{8\,204\,716\,800\,x^{13}}{(1-x)^{22}}\right)\right)\right)\right)\right)\right)\right)$$

large output | show less | show more | show all | set size limit...

In[ ]:=
```
(470350815*x*D[x*D[x*D[x*D[x*D[x*D[x*D[x*D[ f(x),x],x],x],x],x],
 x],x],x],x])/2615348736000
```

```
(470 350 815 * x *
   D[x * D[x * D[x * D[x * D[x * D[x * D[x * D[f[x], x], x], x], x], x], x], x],
    x]) / 2 615 348 736 000
```

Out[ ]=

$$\frac{1}{15\,850\,598\,400} \times 2\,850\,611\,x \left(\frac{13\,x^{12}}{(1-x)^{14}} + \cdots 8 \cdots + x\left(\frac{19\,968\,x^{11}}{(1-x)^{14}} + \cdots 8 \cdots + x\left(\frac{217\,932\,x^{10}}{(1-x)^{14}} + \frac{832\,104\ \cdots 1 \cdots}{\cdots 1 \cdots{}^{15}} + \cdots 11 \cdots + 2\ \cdots 1 \cdots + x\left(\frac{2\,059\,200\,x^{9}}{(1-x)^{14}} + \cdots 12 \cdots + x\left(\frac{15\,289\,560\,x^{8}}{(1-x)^{14}} + \cdots 11 \cdots + x\left(\frac{79\,073\,280\,x^{7}}{(1-x)^{14}} + \cdots 10 \cdots + x\left(\frac{250\,810\,560\,x^{6}}{(1-x)^{14}} + \cdots 9 \cdots + x\left(\frac{415\,134\,720\,x^{5}}{(1-x)^{14}} + \cdots 8 \cdots + x\left(\frac{259\,459\,200\,x^{4}}{(\cdots 1 \cdots)(\cdots 1 \cdots)^{14}} + \cdots 8 \cdots + \frac{\cdots 1 \cdots}{\cdots 1 \cdots}\right)\right)\right)\right)\right)\right)\right)\right)$$

large output | show less | show more | show all | set size limit...

In[ ]:=
```
(-56440835*x*D[x*D[x*D[x*D[x*D[x*D[x*D[x*D[x*D[ f(x),x],x],x],x],
 x],x],x],x],x])/2615348736000
```

```
(-56 440 835 * x *
   D[x * D[x * D[x * D[x * D[x * D[x * D[x * D[x * D[f[x], x], x], x], x], x], x], x], x],
    x]) / 2 615 348 736 000
```

Out[ ]=

$$-\frac{1}{47\,551\,795\,200} \times 1\,026\,197\ \cdots 1 \cdots\ \cdots 1 \cdots \left(\frac{13\,x^{12}}{(1-x)^{14}} + \frac{14\ \cdots 1 \cdots}{\cdots 1 \cdots{}^{15}} + \cdots 7 \cdots + x\ \cdots 1 \cdots + x\left(\frac{39\,936\,x^{11}}{(1-x)^{14}} + \cdots 9 \cdots + x\left(\frac{437\,580\,x^{10}}{(1-x)^{14}} + \cdots 15 \cdots + x\left(\frac{4\,238\,520\,x^{9}}{(1-x)^{14}} + \cdots 14 \cdots + x\left(\frac{33\,822\,360\,x^{8}}{(1-x)^{14}} + \cdots 13 \cdots + x\left(\frac{201\,389\,760\,x^{7}}{(1-x)^{14}} + \frac{\cdots 1 \cdots}{\cdots 1 \cdots{}^{15}} + \cdots 10 \cdots + 14\ \cdots 1 \cdots + x\left(\frac{804\,323\,520\,x^{6}}{(1-x)^{14}} + \cdots 11 \cdots + x\left(\frac{1\,919\,998\,080\,x^{5}}{(1-x)^{14}} + \cdots 10 \cdots + x\left(\frac{2\,335\,132\,800\,x^{4}}{\cdots 1 \cdots{}^{14}} + \cdots 9 \cdots + x\left(\cdots 1 \cdots\right)\right)\right)\right)\right)\right)\right)\right)\right)$$

large output | show less | show more | show all | set size limit...

In[ ]:=

```
(5127697*x*D[x*D[x*D[x*D[x*D[x*D[x*D[x*D[x*D[ f(x),x],x],x],
   x],x],x],x],x],x],x],x])/2615348736000
```

```
(5 127 697 * x * D[x *
      D[x * D[x * D[x * D[x * D[x * D[x * D[x * D[x * D[f[x], x], x], x], x], x], x], x], x],
       x], x]) / 2 615 348 736 000
```

Out[ ]=

$$\frac{1}{2\,615\,348\,736\,000} \times 5\,127\,697\,x \left(\frac{13\,x^{12}}{(1-x)^{14}} + \cdots 10 \cdots + x\left(\frac{79\,872\,x^{11}}{(1-x)^{14}} + \cdots 10 \cdots + x\left(\frac{876\,876\,x^{10}}{(1-x)^{14}} + \cdots 17 \cdots + x\left(\frac{8\,614\,320\,x^{9}}{(1-x)^{14}} + \cdots 16 \cdots + x\left(\frac{71\,969\,040\,x^{8}}{(1-x)^{14}} + \frac{\cdots 1 \cdots}{\cdots 1 \cdots^{15}} + \cdots 13 \cdots + 9 \cdots 1 \cdots + x\left(\frac{471\,968\,640\,x^{7}}{(1-x)^{14}} + \cdots 14 \cdots + x\left(\frac{2\,214\,051\,840\,x^{6}}{(1-x)^{14}} + \cdots 13 \cdots + x\left(\frac{6\,745\,939\,200\,x^{5}}{(1-x)^{14}} + \cdots 12 \cdots + x\left(\frac{11\,935\,123\,200\,\cdots 1 \cdots}{\cdots 1 \cdots^{14}} + \cdots 11 \cdots + x \cdots 1 \cdots\right)\right)\right)\right)\right)\right)\right)\right)\right)$$

large output | show less | show more | show all | set size limit...

In[ ]:=
```
x*D[x*D[x*D[x*D[x*D[x*D[x*D[x*D[x*D[x*D[ f(x),x],x],x],x],x],x],x],
 x],x],x],x]
```

```
x*D[
  x*D[x*D[x*D[x*D[x*D[x*D[x*D[x*D[x*D[f[x], x], x], x], x], x], x], x], x],
    x], x]
```

Out[ ]=

$$x\left(\frac{13\,x^{12}}{(1-x)^{14}}+\cdots 10\cdots+x\left(\frac{79\,872\,x^{11}}{(1-x)^{14}}+\cdots 10\cdots+x\left(\frac{876\,876\,x^{10}}{(1-x)^{14}}+\cdots 17\cdots+x\left(\frac{8\,614\,320\,x^{9}}{(1-x)^{14}}+\cdots 16\cdots+x\left(\frac{71\,969\,040\,x^{8}}{(1-x)^{14}}+\frac{\cdots 1\cdots}{\cdots 1\cdots{}^{15}}+\cdots 13\cdots+9\cdots 1\cdots+x\left(\frac{471\,968\,640\,x^{7}}{(1-x)^{14}}+\cdots 14\cdots+x\left(\frac{2\,214\,051\,840\,x^{6}}{(1-x)^{14}}+\cdots 13\cdots+x\left(\frac{6\,745\,939\,200\,x^{5}}{(1-x)^{14}}+\cdots 12\cdots+x\left(\frac{11\,935\,123\,200\,x^{4}}{(1-x)^{14}}+\frac{300\,765\,104\,640\,x^{5}}{(\cdots 1\cdots)(\cdots 1\cdots)^{15}}+\cdots 9\cdots+35\cdots 1\cdots+x\left(\frac{10\,378\,368\,000\,x^{3}}{(1-x)^{14}}+\frac{363\,242\,880\,000\,x^{4}}{(1-x)^{15}}+\frac{4\,903\,778\,880\,000\,x^{5}}{(1-x)^{16}}+\cdots 7\cdots+\frac{41\,515\,867\,008\,000\,x^{13}}{(1-x)^{24}}+x\left(\frac{3\,113\,510\,400\,x^{2}}{(1-x)^{14}}+\frac{159\,826\,867\,200\,x^{3}}{(1-x)^{15}}+\frac{2\,996\,753\,760\,000\,x^{4}}{(1-x)^{16}}+\frac{28\,768\,836\,096\,000\,x^{5}}{(1-x)^{17}}+\frac{163\,023\,404\,544\,000\,x^{6}}{(1-x)^{18}}+\frac{586\,884\,256\,358\,400\,x^{7}}{(1-x)^{19}}+\frac{1\,393\,850\,108\,851\,200\,x^{8}}{(1-x)^{20}}+\frac{2\,212\,460\,490\,240\,000\,x^{9}}{(1-x)^{21}}+\frac{2\,323\,083\,514\,752\,000\,x^{10}}{(1-x)^{22}}+\frac{1\,548\,722\,343\,168\,000\,x^{11}}{(1-x)^{23}}+\frac{593\,676\,898\,214\,400\,x^{12}}{(1-x)^{24}}+\frac{99\,638\,080\,819\,200\,x^{13}}{(1-x)^{25}}\right)\right)\right)\right)\right)\right)\right)\right)\right)\right)\right)$$

large output | show less | show more | show all | set size limit...

In[ ]:=
```
(-341 575 * x * D[%18, x]) / 2 615 348 736 000
```

Out[ ]=

$$-\frac{1}{8\,047\,226\,880}\times 1051\,x\left(\frac{13\,x^{12}}{(1-x)^{14}}+\cdots 11\cdots+x\left(\frac{159\,744\,x^{11}}{(1-x)^{14}}+\cdots 11\cdots+x\left(\frac{1\,755\,468\,x^{10}}{(1-x)^{14}}+\frac{6\,702\,696\,\cdots 1\cdots}{\cdots 1\cdots{}^{15}}+\cdots 17\cdots+2\cdots 1\cdots+x\left(\frac{17\,383\,080\,x^{9}}{(1-x)^{14}}+\cdots 18\cdots+x\left(\frac{149\,497\,920\,x^{8}}{(1-x)^{14}}+\cdots 17\cdots+x\left(\frac{1\,047\,720\,960\,x^{7}}{(1-x)^{14}}+\cdots 16\cdots+x\left(\frac{5\,517\,832\,320\,x^{6}}{(1-x)^{14}}+\cdots 15\cdots+x\left(\frac{20\,030\,250\,240\,x^{5}}{(1-x)^{14}}+\cdots 14\cdots+x\left(\frac{45\,664\,819\,200\,\cdots 1\cdots}{\cdots 1\cdots{}^{14}}+\cdots 13\cdots+x\cdots 1\cdots\right)\right)\right)\right)\right)\right)\right)\right)\right)$$

large output | show less | show more | show all | set size limit...

In[ ]:=
```
(15755*x*D[x*D[%18,x],x])/2615348736000
```
```
(15 755 * x * D[x * D[%18, x], x]) / 2 615 348 736 000
```

Out[ ]=

$$\frac{1}{523\,069\,747\,200} \times 3151\, x \left(\frac{13\, x^{12}}{(1-x)^{14}} + \cdots 12 \cdots + x\left(\frac{319\,488\, x^{11}}{(1-x)^{14}} + \cdots 12 \cdots + x\left(\frac{3\,512\,652\, x^{10}}{(1-x)^{14}} + \cdots 21 \cdots + x\left(\frac{34\,937\,760\, x^{9}}{(1-x)^{14}} + \frac{\cdots 1 \cdots}{\cdots 1 \cdots^{15}} + \cdots 18 \cdots + 5 \cdots 1 \cdots + x\left(\frac{305\,945\,640\, x^{8}}{(1-x)^{14}} + \cdots 19 \cdots + x\left(\frac{2\,243\,704\,320\, x^{7}}{(1-x)^{14}} + \cdots 18 \cdots + x\left(\frac{12\,851\,879\,040\, x^{6}}{(1-x)^{14}} + \cdots 17 \cdots + x\left(\frac{53\,137\,244\,160\, x^{5}}{(1-x)^{14}} + \cdots 16 \cdots + x\left(\frac{145\,816\,070\,400 \cdots 1 \cdots}{\cdots 1 \cdots^{14}} + \cdots 15 \cdots + x \cdots 1 \cdots\right)\right)\right)\right)\right)\right)\right)\right)$$

large output | show less | show more | show all | set size limit...

In[ ]:=
```
(-450*x*D[x*D[x*D[%18,x],x],x])/2615348736000
```
```
(-450 * x * D[x * D[x * D[%18, x], x], x]) / 2 615 348 736 000
```

Out[ ]=

$$-\frac{1}{5\,811\,886\,080}\, x \left(\frac{13\, x^{12}}{(1-x)^{14}} + \cdots 13 \cdots + x\left(\frac{638\,976\, x^{11}}{(1-x)^{14}} + \cdots 13 \cdots + x\left(\frac{7\,027\,020\, x^{10}}{(1-x)^{14}} + \frac{26\,830\,440 \cdots 1 \cdots}{\cdots 1 \cdots^{15}} + \cdots 21 \cdots + 2 \cdots 1 \cdots + x\left(\frac{70\,064\,280\, x^{9}}{(1-x)^{14}} + \cdots 22 \cdots + x\left(\frac{620\,385\,480\, x^{8}}{(1-x)^{14}} + \cdots 21 \cdots + x\left(\frac{4\,691\,269\,440\, x^{7}}{(1-x)^{14}} + \cdots 20 \cdots + x\left(\frac{28\,557\,809\,280\, x^{6}}{(1-x)^{14}} + \cdots 19 \cdots + x\left(\frac{130\,248\,518\,400\, x^{5}}{(1-x)^{14}} + \cdots 18 \cdots + x\left(\frac{411\,502\,291\,200 \cdots 1 \cdots}{\cdots 1 \cdots^{14}} + \cdots 17 \cdots + x \cdots 1 \cdots\right)\right)\right)\right)\right)\right)\right)\right)$$

large output | show less | show more | show all | set size limit...

In[ ]:=
```
(6*x*D[x*D[x*D[x*D[%18,x],x],x],x])/2615348736000
```
```
(6 * x * D[x * D[x * D[x * D[%18, x], x], x], x]) / 2 615 348 736 000
```

Out[ ]=
$$\frac{1}{435\,891\,456\,000}\,x\left(\frac{13\,x^{12}}{(1-x)^{14}}+\cdots 14\cdots+x\left(\frac{1\,277\,952\,x^{11}}{(1-x)^{14}}+\cdots 14\cdots+x\left(\frac{14\,055\,756\,x^{10}}{(1-x)^{14}}+\frac{53\,667\,432\,\cdots 1\cdots}{\cdots 1\cdots^{15}}+\cdots 23\cdots+2\,\cdots 1\cdots+x\left(\frac{140\,334\,480\,x^{9}}{(1-x)^{14}}+\cdots 24\cdots+x\left(\frac{1\,250\,964\,000\,x^{8}}{(1-x)^{14}}+\cdots 23\cdots+x\left(\frac{9\,654\,353\,280\,x^{7}}{(1-x)^{14}}+\cdots 22\cdots+x\left(\frac{61\,396\,695\,360\,x^{6}}{(1-x)^{14}}+\frac{859\,553\,735\,040\,x^{7}}{\cdots 1\cdots^{15}}+\cdots 19\cdots+20\left(\cdots 1\cdots\right)+x\left(\frac{301\,595\,374\,080\,x^{5}}{(1-x)^{14}}+\cdots 20\cdots+x\left(\cdots 1\cdots\right)\right)\right)\right)\right)\right)\right)\right)\right)$$

large output | show less | show more | show all | set size limit...

In[ ]:=
```
%10 + %11 + %12 + %13 + %14 + %15 + %16 + %17 + %19 + %20 + %21 + %22
```

Out[ ]=
$$\frac{1}{2\,615\,348\,736\,000}\left(-\frac{154\,078\,848\,000\,x^{13}}{(1-x)^{14}}+486\,074\,908\,800\,x\left(\frac{13\,x^{12}}{(1-x)^{14}}+\frac{14\,x^{13}}{(1-x)^{15}}\right)-707\,402\,381\,760\,x\left(\frac{13\,x^{12}}{(1-x)^{14}}+\frac{14\,x^{13}}{(1-x)^{15}}+x\left(\frac{156\,x^{11}}{(1-x)^{14}}+\frac{364\,x^{12}}{(1-x)^{15}}+\frac{210\,x^{13}}{(1-x)^{16}}\right)\right)\right)+\frac{1}{2\,615\,348\,736\,000}\left(631\,255\,103\,784\,x\left(\frac{13\,x^{12}}{(1-x)^{14}}+\cdots 2\cdots+x\left(\frac{312\,x^{11}}{(1-x)^{14}}+\cdots 1\cdots+\cdots 1\cdots+x\left(\frac{1716\,x^{10}}{\cdots 1\cdots^{14}}+\cdots 2\cdots+\frac{\cdots 1\cdots}{\cdots 1\cdots^{17}}\right)\right)\right)-\cdots 1\cdots\right)+\frac{1\,368\,374\,183\,x\left(\cdots 1\cdots\right)}{237\,758\,976\,000}+\cdots 9\cdots+\frac{3151\,x\left(\cdots 1\cdots\right)}{523\,069\,747\,200}-\frac{x\left(\frac{13\,x^{12}}{\left(\cdots 1\cdots\right)^{14}}+\cdots 13\cdots+x\left(\cdots 1\cdots\right)\right)}{5\,811\,886\,080}+\frac{1}{435\,891\,456\,000}\,x\left(\frac{13\,x^{12}}{(1-x)^{14}}+\frac{14\,x^{13}}{\cdots 1\cdots^{15}}+\cdots 12\cdots+x\left(\cdots 1\cdots\right)+x\left(\frac{1\,277\,952\,x^{11}}{(1-x)^{14}}+\cdots 14\cdots+x\left(\frac{14\,055\,756\,x^{10}}{(1-x)^{14}}+\cdots 25\cdots+x\left(\frac{140\,334\,480\,x^{9}}{(1-x)^{14}}+\cdots 24\cdots+x\left(\frac{1\,250\,964\,000\,x^{8}}{(1-x)^{14}}+\cdots 23\cdots+x\left(\frac{9\,654\,353\,280\,x^{7}}{(1-x)^{14}}+\cdots 22\cdots+x\left(\frac{61\,396\,695\,360\,\cdots 1\cdots}{\cdots 1\cdots^{14}}+\cdots 21\cdots+x\left(\cdots 1\cdots\right)\right)\right)\right)\right)\right)\right)\right)$$

large output | show less | show more | show all | set size limit...

In[ ]:=
```
FullSimplify[%23]
```

Out[ ]=
$$-\frac{1}{39\,(-1+x)^{29}}x^{13}(3090+x(165\,837+x(3\,196\,632+x(30\,131\,967+x(158\,053\,587+x(494\,273\,208+x(958\,555\,598+x(1\,177\,541\,573+x(923\,581\,373+3x(153\,594\,806+x(47\,984\,060+x(9\,106\,889+x(997\,974+x(58\,009+13x(118+x)))))))))))))$$

In[ ]:=
```
Expand[
 x^11 (1 + x) (1 + x (98 + x (3031 + x (41 708 + x (295 111 + x (1 155 650 + x (2 598 191 + x (3 401 660 +
                                                x (2 598 191 + x (1 155 650 + x (295 111 +
                                                x (41 708 + x (3031 + x (98 + x))))))))))))))]
```

Out[ ]=
$$x^{11} + 99\,x^{12} + 3129\,x^{13} + 44\,739\,x^{14} + 336\,819\,x^{15} + 1\,450\,761\,x^{16} + 3\,753\,841\,x^{17} + 5\,999\,851\,x^{18} + 5\,999\,851\,x^{19} + 3\,753\,841\,x^{20} + 1\,450\,761\,x^{21} + 336\,819\,x^{22} + 44\,739\,x^{23} + 3129\,x^{24} + 99\,x^{25} + x^{26}$$

In[ ]:=
```
Series[
 x^2 (x^11 + 99 x^12 + 3129 x^13 + 44 739 x^14 + 336 819 x^15 + 1 450 761 x^16 + 3 753 841 x^17 + 5 999 851 x^18 +
      5 999 851 x^19 + 3 753 841 x^20 + 1 450 761 x^21 + 336 819 x^22 +
      44 739 x^23 + 3129 x^24 + 99 x^25 + x^26) / (1 - x)^29, {x, 0, 20}]
```

Out[ ]=
$$x^{13} + 128\,x^{14} + 6435\,x^{15} + 183\,040\,x^{16} + 3\,476\,330\,x^{17} + 48\,542\,208\,x^{18} + 530\,803\,988\,x^{19} + 4\,751\,252\,480\,x^{20} + O[x]^{21}$$