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> F:=1/((1-x)*(1-x^5)*(1-x^10)*(1-x^25));
```

$$F := \frac{1}{(1-x)(-x^5+1)(-x^{10}+1)(-x^{25}+1)} \quad (1)$$

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> S:=series(F,x=0,100);
```

$$\begin{aligned} S := & 1 + x + x^2 + x^3 + x^4 + 2x^5 + 2x^6 + 2x^7 + 2x^8 + 2x^9 + 4x^{10} + 4x^{11} + 4x^{12} + 4x^{13} \\ & + 4x^{14} + 6x^{15} + 6x^{16} + 6x^{17} + 6x^{18} + 6x^{19} + 9x^{20} + 9x^{21} + 9x^{22} + 9x^{23} + 9x^{24} \\ & + 13x^{25} + 13x^{26} + 13x^{27} + 13x^{28} + 13x^{29} + 18x^{30} + 18x^{31} + 18x^{32} + 18x^{33} + 18x^{34} \\ & + 24x^{35} + 24x^{36} + 24x^{37} + 24x^{38} + 24x^{39} + 31x^{40} + 31x^{41} + 31x^{42} + 31x^{43} + 31x^{44} \\ & + 39x^{45} + 39x^{46} + 39x^{47} + 39x^{48} + 39x^{49} + 49x^{50} + 49x^{51} + 49x^{52} + 49x^{53} + 49x^{54} \\ & + 60x^{55} + 60x^{56} + 60x^{57} + 60x^{58} + 60x^{59} + 73x^{60} + 73x^{61} + 73x^{62} + 73x^{63} + 73x^{64} \\ & + 87x^{65} + 87x^{66} + 87x^{67} + 87x^{68} + 87x^{69} + 103x^{70} + 103x^{71} + 103x^{72} + 103x^{73} \\ & + 103x^{74} + 121x^{75} + 121x^{76} + 121x^{77} + 121x^{78} + 121x^{79} + 141x^{80} + 141x^{81} \\ & + 141x^{82} + 141x^{83} + 141x^{84} + 163x^{85} + 163x^{86} + 163x^{87} + 163x^{88} + 163x^{89} \\ & + 187x^{90} + 187x^{91} + 187x^{92} + 187x^{93} + 187x^{94} + 213x^{95} + 213x^{96} + 213x^{97} \\ & + 213x^{98} + 213x^{99} + O(x^{100}) \end{aligned} \quad (2)$$

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> 1/((1-p*x)*(1-n*x^5)*(1-d*x^10)*(1-q*x^25));
```

$$\frac{1}{(-px+1)(-nx^5+1)(-dx^{10}+1)(-qx^{25}+1)} \quad (3)$$

```
> series(%,x=0,12);
```

$$\begin{aligned} & 1 + px + p^2x^2 + p^3x^3 + p^4x^4 + (p^5+n)x^5 + (p^6+pn)x^6 + (p^7+p^2n)x^7 + (p^8 \\ & + p^3n)x^8 + (p^9+p^4n)x^9 + (p^{10} - (-p^5-n)n + d)x^{10} + (p^{11} - (-p^6-pn)n \\ & + pd)x^{11} + O(x^{12}) \end{aligned} \quad (4)$$

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> coeff(%,x,10);
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$$p^{10} - (-p^5 - n)n + d \quad (5)$$

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> simplify(%);
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$$p^{10} + np^5 + n^2 + d \quad (6)$$

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> coeff(S,x,83);
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$$141 \quad (7)$$

```
> g:=product(1/(1-x^k),k=1..20);
```

$$\begin{aligned} g := & 1 / ((1-x)(-x^2+1)(-x^3+1)(-x^4+1)(-x^5+1)(-x^6+1)(-x^7+1)(-x^8 \\ & + 1)(-x^9+1)(-x^{10}+1)(-x^{11}+1)(-x^{12}+1)(-x^{13}+1)(-x^{14}+1)(-x^{15} \\ & + 1)(-x^{16}+1)(-x^{17}+1)(-x^{18}+1)(-x^{19}+1)(-x^{20}+1)) \end{aligned} \quad (8)$$

```
> series(%,x=0,20);
```

$$\begin{aligned} & 1 + x + 2x^2 + 3x^3 + 5x^4 + 7x^5 + 11x^6 + 15x^7 + 22x^8 + 30x^9 + 42x^{10} + 56x^{11} + 77x^{12} \\ & + 101x^{13} + 135x^{14} + 176x^{15} + 231x^{16} + 297x^{17} + 385x^{18} + 490x^{19} + O(x^{20}) \end{aligned} \quad (9)$$