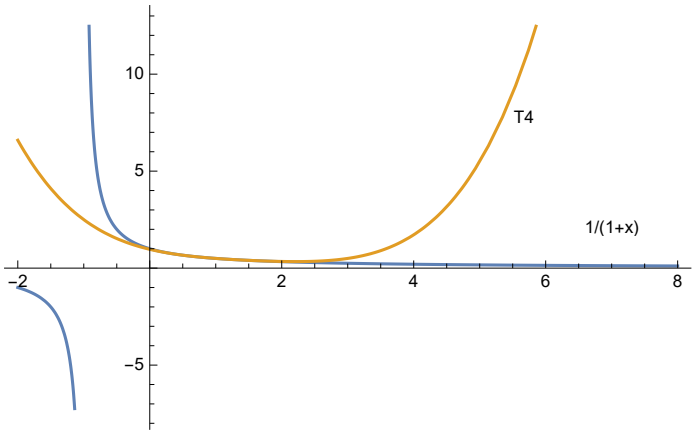
```
Plot[{1/(1+x),
  (1/2) - ((x-1)/4) + ((x-1)^2)/8 - ((x-1)^3)/16 + ((x-1)^4)/32}, {x, -2, 8}]
```




```
Sum[((-1)^n) * ((x-1)^n / 2^(n+1)), {n, 1, 30}]
```

$$\frac{1-x}{4}+\frac{1}{8}(-1+x)^2-\frac{1}{16}(-1+x)^3+\frac{1}{32}(-1+x)^4-\frac{1}{64}(-1+x)^5+\frac{1}{128}(-1+x)^6-\frac{1}{256}(-1+x)^7+\frac{1}{512}(-1+x)^8-\frac{(-1+x)^9}{1024}+\frac{(-1+x)^{10}}{2048}-\frac{(-1+x)^{11}}{4096}+\frac{(-1+x)^{12}}{8192}-\frac{(-1+x)^{13}}{16\,384}+\frac{(-1+x)^{14}}{32\,768}-\frac{(-1+x)^{15}}{65\,536}+\frac{(-1+x)^{16}}{131\,072}-\frac{(-1+x)^{17}}{262\,144}+\frac{(-1+x)^{18}}{524\,288}-\frac{(-1+x)^{19}}{1\,048\,576}+\frac{(-1+x)^{20}}{2\,097\,152}-\frac{(-1+x)^{21}}{4\,194\,304}+\frac{(-1+x)^{22}}{8\,388\,608}-\frac{(-1+x)^{23}}{16\,777\,216}+\frac{(-1+x)^{24}}{33\,554\,432}-\frac{(-1+x)^{25}}{67\,108\,864}+\frac{(-1+x)^{26}}{134\,217\,728}-\frac{(-1+x)^{27}}{268\,435\,456}+\frac{(-1+x)^{28}}{536\,870\,912}-\frac{(-1+x)^{29}}{1\,073\,741\,824}+\frac{(-1+x)^{30}}{2\,147\,483\,648}$$

```
Plot[{1/(1+x), (1-x)/4 + (1/8)(-1+x)^2 - (1/16)(-1+x)^3 + (1/32)(-1+x)^4 - (1/64)(-1+x)^5 + (1/128)(-1+x)^6 -
  (1/256)(-1+x)^7 + (1/512)(-1+x)^8 - (-1+x)^9/1024 + (-1+x)^10/2048 - (-1+x)^11/4096 + (-1+x)^12/8192 - (-1+x)^13/16384 +
  (-1+x)^14/32768 - (-1+x)^15/65536 + (-1+x)^16/131072 - (-1+x)^17/262144 + (-1+x)^18/524288 - (-1+x)^19/1048576 + (-1+x)^20/2097152 -
  (-1+x)^21/4194304 + (-1+x)^22/8388608 - (-1+x)^23/16777216 + (-1+x)^24/33554432 - (-1+x)^25/67108864 + (-1+x)^26/134217728 - (-1+x)^27/268435456 +
  (-1+x)^28/536870912 - (-1+x)^29/1073741824 + (-1+x)^30/2147483648}, {x, -2, 8}, PlotRange → {-5, 30}]
```

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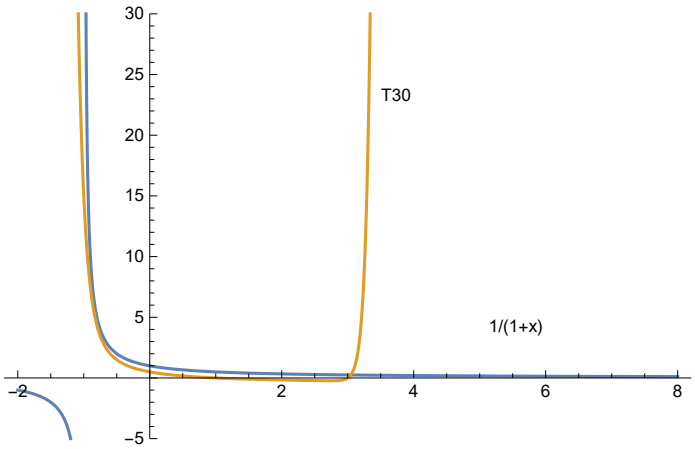
30
25
20
15
10
5
−5
−2
2
4
6
8
T30
1/(1+x)