$$c[u_{-}, v_{-}, a_{-}, b_{-}] := (1 + ((u \land (-a) - 1) \land b + (v \land (-a) - 1) \land b) \land (1 / b)) \land (-1 / a)$$

 $dA = Simplify[D[c[ul, x, al, 1], x]/.x \rightarrow t]$

$$t^{-1-a1} \ \left(-1 + t^{-a1} + u1^{-a1}\right)^{-\frac{1+a1}{a1}}$$

$$dB = D[c[x, u3, a2, 1], x]/.x \rightarrow t$$

$$t^{-1-a2} \left(-1 + t^{-a2} + u3^{-a2}\right)^{-1-\frac{1}{a2}}$$

Co = Simplify[c[dA, dB, a3, 1]]

$$\sqrt{-1 + \left(11.5893 + \frac{1}{t^{1.1}}\right)^{3.81818} t^{4.2} + \left(0.371742 + \frac{1}{t^{3}}\right)^{8/3} t^{8}}$$

NIntegrate [Co, {t, 0, 1}]

0.0999968

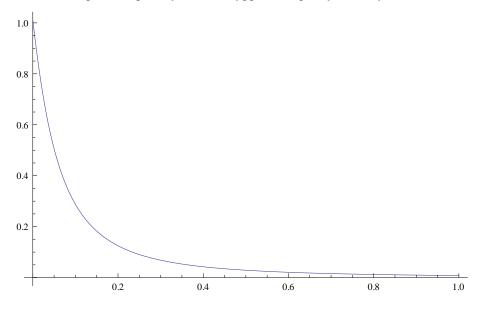
0.9

u2=.

a3 = 2;

g =;

 $g = Normal[Series[Co, \{t, 1, 150\}]]; Plot[g, \{t, 0, 1\}, PlotRange \rightarrow All]$



```
0.00794295 - 0.0153552 (-1 + t) + 0.0218487 (-1 + t)^2 - 0.0273498 (-1 + t)^3 + 0.0318784 (-1 + t)^4 - 0.0218487 (-1 + t)^3 + 0.0318784 (-1 + t)^4 - 0.0218487 (-1 + t)^4 - 0.021847 (-1 + t)^4 - 0.02187 (-1 + t)^4 - 0.021847 (-1 + t)^4 - 0.021847 (-1 + t)
               0.0354939 \, \left(-1+t\right){}^{5} + 0.0382729 \, \left(-1+t\right){}^{6} - 0.0402987 \, \left(-1+t\right){}^{7} + 0.0416558 \, \left(-1+t\right){}^{8} - 0.0416558 \, \left(-1+t\right){}^{8} + 0.0416568 \, \left(-1+t\right){}^{8} + 0.0416568 \, \left(-1+t\right){}^{8} + 0.0416658 \, \left(-1+t\right){}^{8} + 0.0416658 \, \left(-1+t\right){}^{8} + 0.0416658 \, \left(-1+t\right){}^{8} + 0.0416658 \, \left(-1+t\right){}^{8} + 0.041668 \, \left(-1+t\right){}^{8} + 0.04168 \, \left(-1+t\right){}^{8} + 0.04168
               0.0424264 (-1+t)^9 + 0.0426885 (-1+t)^{10} - 0.042515 (-1+t)^{11} + 0.0419728 (-1+t)^{12} - 0.042515 (-1+t)^{11} + 0.0419728 (-1+t)^{12} - 0.042615 (-1+t)^{11} + 0.0419728 (-1+t)^
               0.041123(-1+t)^{13} + 0.0400209(-1+t)^{14} - 0.0387157(-1+t)^{15} + 0.0372513(-1+t)^{16} - 0.041123(-1+t)^{16} - 0.041123(-1+t)^{1
               0.0356663 (-1+t)^{17} + 0.0339947 (-1+t)^{18} - 0.0322658 (-1+t)^{19} + 0.0305051 (-1+t)^{20} - 0.0356663 (-1+t)^{17} + 0.0305051 (-1+t)^{18} - 0.0322658 (-1+t)^{19} + 0.0305051 (-1+t)^{19} - 0.005051 (-1+t)^{19} - 0.005051
               0.028734 (-1+t)^{21} + 0.026971 (-1+t)^{22} - 0.0252315 (-1+t)^{23} + 0.0235279 (-1+t)^{24} - 0.0252315 (-1+t)^{24} - 0.02525215 (-1+t)^{24}
               0.0218707 (-1 + t)^{25} + 0.020268 (-1 + t)^{26} - 0.0187262 (-1 + t)^{27} + 0.01725 (-1 + t)^{28} -
               0.0158428 (-1 + t)^{29} + 0.0145066 (-1 + t)^{30} - 0.0132428 (-1 + t)^{31} + 0.0120514 (-1 + t)^{32} - 0.0132428 (-1 + t)^{31} + 0.0120514 (-1 + t)^{32} - 0.0132428 (-1 + t)^{31} + 0.0120514 (-1 + t)^{32} - 0.0132428 (-1 + t)^{31} + 0.0120514 (-1 + t)^{32} - 0.0132428 (-1 + t)^{31} + 0.0120514 (-1 + t)^{32} - 0.0132428 (-1 + t)^{31} + 0.0120514 (-1 + t)^{32} - 0.0132428 (-1 + t)^{31} + 0.0120514 (-1 + t)^{32} - 0.0132428 (-1 + t)^{31} + 0.0120514 (-1 + t)^{32} - 0.0132428 (-1 + t)^{31} + 0.0120514 (-1 + t)^{32} - 0.0132428 (-1 + t)^{31} + 0.0120514 (-1 + 
               0.0109321 (-1+t)^{33} + 0.00988378 (-1+t)^{34} - 0.00890484 (-1+t)^{35} + 0.00799333 (-1+t)^{36} -
               0.00714696 (-1+t)^{37} + 0.0063632 (-1+t)^{38} - 0.00563935 (-1+t)^{39} + 0.00497257 (-1+t)^{40} -
               0.00435995 (-1+t)^{41} + 0.00379856 (-1+t)^{42} - 0.00328545 (-1+t)^{43} + 0.0028177 (-1+t)^{44} - 0.00328545 (-1+t)^{44} - 0.0028177 (-1+t)^{44} - 0.00378856 (-1+t)^{44} - 0.0037886 (-1+t)^{44} - 0.003788 (-1+t)^{44} - 0.0037886 (-1+t)^{44} - 0.003886 (-1+t)^{44} - 0.003
               0.00239246 \, \left(-1+t\right)^{45} + 0.00200691 \, \left(-1+t\right)^{46} - 0.00165835 \, \left(-1+t\right)^{47} + 0.00134415 \, \left(-1+t\right)^{48} - 0.00165835 \, \left(-1+t\right)^{47} + 0.00134415 \, \left(-1+t\right)^{48} + 0.0013415 \, \left(-1+t\right)^{48} + 0.00134415 \, \left(-1+t\right)^{48} + 0.0013415 \, \left(-1+t\right)^
               0.00106181 (-1+t)^{49} + 0.000808914 (-1+t)^{50} - 0.000583185 (-1+t)^{51} + 0.000382451 (-1+t)^{52} - 0.000583185 (-1+t)^{51} + 0.000382451 (-1+t)^{51} + 0.000382451 (-1+t)^{51} + 0.000583185 (-1+t)^{51} + 0.000382451 (-1+t)^{51} + 0.000583185 (-1+t)^{51} + 0.000382451 (-1+t)^{51} + 0.000583185 (-1+t)^{51} + 0.000382451 (-1+t)^{51} + 0.000382451 (-1+t)^{51} + 0.000582185 (-1+t
               0.000204661 (-1+t)^{53} + 0.0000478864 (-1+t)^{54} + 0.0000896884 (-1+t)^{55} -
                  0.000209762 (-1+t)^{56} + 0.000313921 (-1+t)^{57} - 0.000403643 (-1+t)^{58} +
               0.000480304 (-1+t)^{59} - 0.000545176 (-1+t)^{60} + 0.000599438 (-1+t)^{61} -
               0.000644178 (-1+t)^{62} + 0.000680397 (-1+t)^{63} - 0.000709014 (-1+t)^{64} +
               0.000730874 (-1+t)^{65} - 0.000746747 (-1+t)^{66} + 0.00075734 (-1+t)^{67} - 0.000763292 (-1+t)^{68} + 0.00075734 (-1+t)^{67} - 0.000763292 (-1+t)^{68} + 0.00075734 (-1+t)^{67} - 0.000763292 (-1+t)^{68} + 0.00075734 (-1+t)^{68} + 0.0007574 (-1+t)^{68} + 0.
               0.000765187 \; (-1+t)^{69} - 0.000763553 \; (-1+t)^{70} + 0.00075887 \; (-1+t)^{71} - 0.000751568 \; (-1+t)^{72} + 0.00075168 \; (-1+t
               0.000742036 \; \left(-1+t\right)^{73} - 0.000730623 \; \left(-1+t\right)^{74} + 0.00071764 \; \left(-1+t\right)^{75} - 0.000703369 \; \left(-1+t\right)^{76} + 0.00071764 \; \left(-1+t\right)^{75} + 0.000703369 \; \left(-1+t\right)^{76} + 0.0007030623 \; \left(-1+t\right)^{76} + 0.0007030623 \; \left(-1+t\right)^{76} + 0.0007030623 \; \left(-1+t\right)^{76} + 0.0007030623 \; \left(-1+t\right)^{76} + 0.000703369 \; \left(-1+t\right)^{76} + 0.000703369 \; \left(-1+t\right)^{76} + 0.000703369 \; \left(-1+t\right)^{76} + 0.0007030623 \; \left(-1+t
               0.000688055(-1+t)^{77}-0.000671921(-1+t)^{78}+0.000655161(-1+t)^{79}-0.000637946(-1+t)^{80}
  gg = g /.t \rightarrow (t+1);
NIntegrate [gg, {t, -1, 0}]
  0.100033
NIntegrate [Co, {t, 0, 1}]
  0.0999968
NIntegrate [g, {t, 0, 1}]
  0.100015
Integrate [(t-x)^n, \{t,0,1\}]
      \frac{(1-x)^{1+n} + (-x)^{n} x}{n} / . x \to 0.2 / . n \to 11
```

Assumptions = 1 > x > 0 & n > 0

$$1 > x > 0 \&\& n > 0$$

$$\left(\,\left(1-x\right)\,\,{}^{\wedge}\,\left(n+1\right)\,+\,\left(-x\right)\,\,{}^{\wedge}\,\left(n+1\right)\,\right)\,/\,\left(n+1\right)\,\,/\,.\,\,x\,\rightarrow\,0.2\,/\,.\,\,n\,\rightarrow\,11$$

0.00572662

0.00572662

```
ab = {Co, D[Co, {t, 1}], D[Co, {t, 2}], D[Co, {t, 3}],
        D[Co, {t, 4}], D[Co, {t, 5}], D[Co, {t, 6}], D[Co, {t, 7}], D[Co, {t, 8}],
        D[Co, {t, 9}], D[Co, {t, 10}], D[Co, {t, 11}], D[Co, {t, 12}]} /. t → T;

ab / Table[n!, {n, 0, 12}] /. T → 0.1

{0.287667, -2.89569, 20.7606, -126.03, 676.746, -3202.18, 12524.7,
        -29125.3, -124737., 2.66501 × 10<sup>6</sup>, -2.8417 × 10<sup>7</sup>, 2.54132 × 10<sup>8</sup>, -2.1183 × 10<sup>9</sup>}

D[Co, {t, 20}] / 20! /. t → 1

0.0304978
```