Exit[]

c[u_ , v_ , a_ , b_] := (1 + ((u ^ (-a) - 1) ^ b + (v ^ (-a) - 1) ^ b) ^ (1 / b)) ^ (-1 / a)

dA = Simplify[D[c[u1, x, a1, 1], x] /. x → t]

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

dB = D[c[x, u3, a2, 1], x] /. x → t

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

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

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

NIntegrate[Co, {t, 0, 1}]
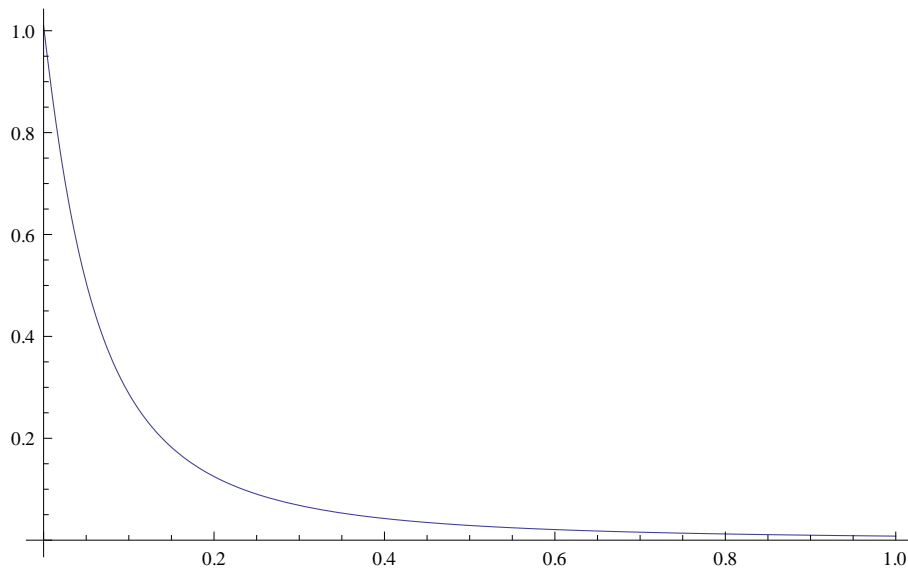
0.0999968

a1 = 1.1; a2 = 3; u1 = 0.1; u3 = 0.9

0.9

u2 =.

a3 = 2;

g =;

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

g

$0.00794295 - 0.0153552 (-1+t) + 0.0218487 (-1+t)^2 - 0.0273498 (-1+t)^3 + 0.0318784 (-1+t)^4 - 0.0354939 (-1+t)^5 + 0.0382729 (-1+t)^6 - 0.0402987 (-1+t)^7 + 0.0416558 (-1+t)^8 - 0.0424264 (-1+t)^9 + 0.0426885 (-1+t)^{10} - 0.042515 (-1+t)^{11} + 0.0419728 (-1+t)^{12} - 0.041123 (-1+t)^{13} + 0.0400209 (-1+t)^{14} - 0.0387157 (-1+t)^{15} + 0.0372513 (-1+t)^{16} - 0.0356663 (-1+t)^{17} + 0.0339947 (-1+t)^{18} - 0.0322658 (-1+t)^{19} + 0.0305051 (-1+t)^{20} - 0.028734 (-1+t)^{21} + 0.026971 (-1+t)^{22} - 0.0252315 (-1+t)^{23} + 0.0235279 (-1+t)^{24} - 0.0218707 (-1+t)^{25} + 0.020268 (-1+t)^{26} - 0.0187262 (-1+t)^{27} + 0.01725 (-1+t)^{28} - 0.0158428 (-1+t)^{29} + 0.0145066 (-1+t)^{30} - 0.0132428 (-1+t)^{31} + 0.0120514 (-1+t)^{32} - 0.0109321 (-1+t)^{33} + 0.00988378 (-1+t)^{34} - 0.00890484 (-1+t)^{35} + 0.00799333 (-1+t)^{36} - 0.00714696 (-1+t)^{37} + 0.0063632 (-1+t)^{38} - 0.00563935 (-1+t)^{39} + 0.00497257 (-1+t)^{40} - 0.00435995 (-1+t)^{41} + 0.00379856 (-1+t)^{42} - 0.00328545 (-1+t)^{43} + 0.0028177 (-1+t)^{44} - 0.00239246 (-1+t)^{45} + 0.00200691 (-1+t)^{46} - 0.00165835 (-1+t)^{47} + 0.00134415 (-1+t)^{48} - 0.00106181 (-1+t)^{49} + 0.000808914 (-1+t)^{50} - 0.000583185 (-1+t)^{51} + 0.000382451 (-1+t)^{52} - 0.000204661 (-1+t)^{53} + 0.0000478864 (-1+t)^{54} + 0.0000896884 (-1+t)^{55} - 0.000209762 (-1+t)^{56} + 0.000313921 (-1+t)^{57} - 0.000403643 (-1+t)^{58} + 0.000480304 (-1+t)^{59} - 0.000545176 (-1+t)^{60} + 0.000599438 (-1+t)^{61} - 0.000644178 (-1+t)^{62} + 0.000680397 (-1+t)^{63} - 0.000709014 (-1+t)^{64} + 0.000730874 (-1+t)^{65} - 0.000746747 (-1+t)^{66} + 0.00075734 (-1+t)^{67} - 0.000763292 (-1+t)^{68} + 0.000765187 (-1+t)^{69} - 0.000763553 (-1+t)^{70} + 0.00075887 (-1+t)^{71} - 0.000751568 (-1+t)^{72} + 0.000742036 (-1+t)^{73} - 0.000730623 (-1+t)^{74} + 0.00071764 (-1+t)^{75} - 0.000703369 (-1+t)^{76} + 0.000688055 (-1+t)^{77} - 0.000671921 (-1+t)^{78} + 0.000655161 (-1+t)^{79} - 0.000637946 (-1+t)^{80}$

gg = g /. t → (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}]

$\dfrac{(1-x)^{1+n} + (-x)^n \, x}{1 + n}$ **/. x → 0.2 /. n → 11**

0.00572662

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

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

((1 - x) ^ (n + 1) + (-x) ^ (n + 1)) / (n + 1) /. x → 0.2 /. n → 11

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
```

$\{0.287667, -2.89569, 20.7606, -126.03, 676.746, -3202.18, 12524.7,$
$-29125.3, -124737., 2.66501 \times 10^6, -2.8417 \times 10^7, 2.54132 \times 10^8, -2.1183 \times 10^9\}$

```
D[Co, {t, 20}] / 20! /. t → 1
```

0.0304978