```
> Digits := 100;
```

$$Digits := 100 \tag{1}$$

```
> g := sqrt(2*exp(-x)-1);
```

$$g := \sqrt{2\,e^{-x} - 1} \tag{2}$$

```
> h := arctan(g)/g;
```

$$h := \frac{\arctan\left(\sqrt{2\,e^{-x} - 1}\right)}{\sqrt{2\,e^{-x} - 1}} \tag{3}$$

```
> series(h,x,6);
```

$$\frac{\pi}{4} + \left(\frac{\pi}{4} - \frac{1}{2}\right) x + \left(\frac{\pi}{4} - \frac{3}{4}\right) x^2 + \left(\frac{7\,\pi}{24} - \frac{11}{12}\right) x^3 + \left(\frac{35\,\pi}{96} - \frac{55}{48}\right) x^4 + \left(\frac{113\,\pi}{240} - \frac{71}{48}\right) x^5 + O\left(x^6\right) \tag{4}$$

```
> SER := series(h,x,101):
> a100 := coeff(SER,x,100);
```

a100 :=

(
149360979288448364432855501441047970887977912223392928661228656197927464768935406795159479205935364587683215462734949692317327853550042586460160482405406282122360313755824 1 π) /
1066585319359361744933705586928762291322468208735789959641062444516772571351199035530759588298931637557185119095168271522870688124764160000000000000000000000
7422148738354103404468753517784215263649289075739064377558275238967544744232003626900238046721

```
> a90 := coeff(SER,x,90);
```

a90 :=

(
5477328245587951768405474667280061287136622584818192274585514927325571973376345769312907985445384931934162383113666996613217430262666391756761184135676 π) /
1449478989738303899814168520605683646717629230521647577504601818248766237164942318581455737922813716727431448263393280000000000000000000000
− 503934929487998703075855836865652386547869367540218848722238408069360535363977810500242449027556621757065986363817737878225301998893848250484063338962999582659830453615599775182025258847017635270570803200000000000000000000000

```
> x10 := evalf(a100/a90);
```

x10 :=

$$-6.4269203010227697143692342959967849001029307663022014398135094482456978\backslash \tag{7}$$

$$617902791681471988231866048 44\ 10^{-9}$$

```
> LogAvg := log(-x10)/10;
```

$$LogAvg := -1.886277037128410097071923246176503219883971727190607702695908112820204059558880018480430763192019757 \tag{8}$$

```
> RatioAvg := exp(LogAvg);
```

$$RatioAvg := 0.151635291833907920841100649409932082025144314023759304619081070410219380866771320044962559785036002 5 \tag{9}$$