```
restart : Digits := 16;
```

$$Digits := 16 \tag{1}$$

```
f1 := A/sqrt((2*A^2+A^4)-(2*A^2.u^2+A^4.u^4))
```

$$f1 := \frac{A}{\sqrt{2\,A^2+A^4-2\,A^2\cdot u^2-A^4\cdot u^4}} \tag{2}$$

```
#integrate(f1, u=0..1)
f2 := convert(series(f1, A=0, 4), polynom) assuming A>0
```

$$f2 := \frac{1}{\sqrt{-2\,u^2+2}} - \frac{\left(-u^4+1\right)A^2}{2\left(-2\,u^2+2\right)^{3/2}} \tag{3}$$

```
integrate(f2, u=0..1)
```

$$-\frac{3\,A^2\sqrt{2}\,\pi}{32}+\frac{\sqrt{2}\,\pi}{4} \tag{4}$$

```
eq := %=T/sqrt(2)*4
```

$$eq := -\frac{3\,A^2\sqrt{2}\,\pi}{32}+\frac{\sqrt{2}\,\pi}{4}=\frac{T\sqrt{2}}{8} \tag{5}$$

```
Tsol := solve(%, T)
```

$$Tsol := -\frac{3}{4}A^2\pi+2\,\pi \tag{6}$$

```
F := subs(A=0.001, f1); integrate(F, u=0..1)
```

$$F := \frac{0.001}{\sqrt{2.000001\ 10^{-6}-2\ (1.\ 10^{-6})\cdot u^2-(1.\ 10^{-12})\cdot u^4}}$$

$$1.110720318019563 \tag{7}$$

```
evalf(%) = T/sqrt(2)*4; solve(%, T)
```

$$1.110720318019563=\frac{\sqrt{2}\,T}{8}$$

$$6.283182950986493 \tag{8}$$

```
evalf(subs(A=0.001, Tsol))
```

$$6.283182950985096 \tag{9}$$

```
evalf(2*Pi)
```

$$6.283185307179586 \tag{10}$$