[6.36] Integration may return 'undef' for identical integration limits

By definition,

$$\int_a^a f(x)dx = 0$$

for any *a* and *f(x)*. The TI-89/92+ evaluate such 'zero-width' integrals correctly with either *nInt()* or `∫()`, unless *f(x)* cannot be evaluated at *a*. For example, these functions all return zero:

`∫(1,x,Ø,Ø)`	or	nInt(1,x,0,0)
`∫(x,x,Ø,Ø)`	or	nInt(x,x,0,0)
`∫(sin(x),x,Ø,Ø)`	or	nInt(sin(x),x,0,0)

However, if f(a) is undefined, then these expressions return *undef*:

`∫(1/x,x,Ø,Ø)`	or	nInt(1,x,0,0)
`∫(sin(x),x,Ø,Ø)`	or	nInt(1,x,0,0)

If the integration limits are specified symbolically instead of numerically, then `∫()` correctly returns zero, but *nInt()* returns itself:

`∫(1/x,x,Ø,Ø)`	returns 0
`nInt(1/x,x,Ø,Ø)`	returns `nInt(1/x,x,Ø,Ø)`

This behavior is not a problem for manual calculations because you would never bother to evaluate an integral with identical limits. However, it could be a problem if you evaluate integrals within a program or function. If so, test the integration limits for equality before evaluating the integral. If they are equal, return zero. One method is

```
when(a=b,Ø,∫(1/x,x,a,b))
```