PROCEDURE **CinSi** (x: REAL): LibComplex.Complex
Returns the Cosine and Sine integrals as respectively the real and imaginary parts of the result.

The Cosine integral C_{in} is defined as:

Cin (x) = Integral [0 .. x] of (1 - cos (t)) / t.

$$\mathrm{Cin}(x) = \int_{t=0}^{x} \frac{1-\cos(t)}{t} dt$$

$$\mathrm{C_{in}}(x) \equiv \int\limits_{t=0}^{x} \frac{1-\cos(t)}{t}\, \mathrm{d}t$$

The Sine integral S_i is defined as:

Si (x) = Integral [0 .. x] of sin (t) / t.

$$\mathrm{Si}(x) = \int_{0}^{x} \frac{\sin(t)}{t} dt$$

$$\mathrm{S_i}(x) \equiv \int\limits_{0}^{x} \frac{\sin(t)}{t}\, \mathrm{d}t$$

Sample value : CinSi (1) = 0.23981 17420 + 0.94608 30703 i.

[Note that the Cosine integral Ci is defined differently, namely as Ci (x) = Ln (x) + gamma - Cin (x)
where gamma = 0.5772156649015329...]

The method employed is based on the method in Numerical Recipes, ie power series for small x, complex continued fraction for large x.

This function (ie Cin (x) + i * Si (x)) is in fact the value of the exponential integral Ein (i * x) .

Accuracy is better than 13 decimal places.