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Submitter :
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Dawson's Integral

Function subprograms `RDAWSN` and `DDAWSN` calculate the Dawson integral

$$F(x) \;=\; e^{-x^2} \int_0^x e^{t^2} dt$$

for real arguments x.

On CDC and Cray computers, the double-precision version `DDAWSN` is not available.

Structure:

`FUNCTION` subprograms
User Entry Names: `RDAWSN`, `DDAWSN`
Obsolete User Entry Names: `DAWSON` $\equiv$ `RDAWSN`

Usage:

In any arithmetic expression,

`RDAWSN(X)` or `DDAWSN(X)` has the value $F(\mathtt{X})$,

where `RDAWSN` is of type `REAL`, `DDAWSN` is of type `DOUBLE PRECISION`, and `X` has the same type as the function name.

Method:

Rational approximation.

Accuracy:

`RDAWSN` (except on CDC and Cray computers) has full single-precision accuracy. For most values of the argument `X`, `DDAWSN` (and `RDAWSN` on CDC and Cray computers) has an accuracy of approximately one significant digit less than the machine precision.

References:

1. W.J. Cody, K.A. Paciorek and H.C. Thacher,Jr., Chebyshev approximations for Dawson's integral, Math. Comp. **24** (1970) 171–178.

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