

Force the symbolic processor to do exact arithmetic by turning the number into the ratio of two integers:

$$xx := 50.123456 \text{ factor} \rightarrow \frac{783179}{15625}$$

$$\text{Shi}(zz) \cdot \sinh(zz) \left| \begin{array}{l} \text{substitute, } zz = xx \\ \text{float, 80} \end{array} \right. \rightarrow 175194235292418191225256385024486546990896.24729073749899941848796046784264442276$$

$$\text{Shi}(zz) \cdot \sinh(zz) - \cosh(zz) \cdot \text{Chi}(zz) \left| \begin{array}{l} \text{substitute, } zz = xx \\ \text{float, 80} \end{array} \right. \rightarrow -3.9899027016988338692848960028230579 \cdot 10^{-4}$$

Or even

$$cc := 50.$$

$$\text{Shi}(zz) \cdot \sinh(zz) - \cosh(zz) \cdot \text{Chi}(zz) \left| \begin{array}{l} \text{substitute, } zz = (cc \text{ factor} \rightarrow 50) \\ \text{float, 80} \end{array} \right. \rightarrow -4.0096781291455848412919213080722299 \cdot 10^{-4}$$

...unless it has no decimal pt

$$\underline{cc} := 50$$

$$\text{Shi}(zz) \cdot \sinh(zz) - \cosh(zz) \cdot \text{Chi}(zz) \left| \begin{array}{l} \text{substitute, } zz = (cc \text{ factor} \rightarrow 2 \cdot 5^2) \\ \text{float, 80} \end{array} \right. \rightarrow \text{Shi}(2 \cdot 5^2) \cdot \sinh(2 \cdot 5^2) - 1 \cdot \cosh(2 \cdot 5^2) \cdot \text{Chi}(2 \cdot 5^2)$$

$$\text{test}(bb, ndig) := \left. \begin{array}{l} y \leftarrow \text{Shi}(b) \cdot \sinh(b) - \cosh(b) \cdot \text{Chi}(b) \\ y \end{array} \right| \begin{array}{l} \text{substitute, } b = \left(\text{bb factor} \rightarrow \frac{501}{10} \right) \\ \text{float, ndig} \end{array} \rightarrow -3.9936486475149222918519397998243679 \cdot 10^{-4}$$

$$\text{test}(50.1, 80) = -3.99364864751492 \times 10^{-4}$$

$$\text{test2}(bb, ndig) := \left. \begin{array}{l} y \leftarrow \text{Shi}(b) \cdot \sinh(b) - \cosh(b) \cdot \text{Chi}(b) \\ y \end{array} \right| \begin{array}{l} \text{substitute, } b = \left(\text{bb factor} \rightarrow 2 \cdot 5^2 \right) \\ \text{float, ndig} \end{array} \rightarrow \text{Shi}(2 \cdot 5^2) \cdot \sinh(2 \cdot 5^2) - 1 \cdot \cosh(2 \cdot 5^2) \cdot \text{Chi}(2 \cdot 5^2)$$

$$\text{test2}(50, 80) = \blacksquare$$