

Simpson $\frac{1}{3}$

$$\int_1^2 \ln x \cdot \sin x \, dx$$

$$\begin{aligned} a &= 1 \\ b &= 2 \\ n &= 2 \end{aligned}$$

$$h = \frac{b-a}{2}$$

$$h = \frac{1}{2}$$

$$h = \frac{2-1}{2}$$

Error de aproximación a 2 iteraciones con el método Simpson $\frac{1}{3}$

$$A_1 = \frac{h}{3} \left[f(1) + 4f\left(\frac{3}{2}\right) + f(2) \right]$$

$$\frac{h}{3} \left[\ln(1) \cdot \sin(1) + 4 \left[\ln\left(\frac{3}{2}\right) \cdot \sin\left(\frac{3}{2}\right) \right] + \ln(2) \cdot \sin(2) \right]$$

$$\frac{1}{6} \left[0 + 1,61779 + 0,63027 \right]$$

$$\frac{1}{6} \left[2,24806 \right] = 0,37467$$

$$\begin{aligned} a &= 1 \\ b &= 2 \\ n &= 4 \end{aligned}$$

$$h = \frac{b-a}{2}$$

$$h = \frac{1}{4}$$

$$h = \frac{2-1}{4}$$

$$A_2 = \frac{h}{3} \left[f(1) + 4f\left(\frac{5}{4}\right) + 2f\left(\frac{3}{2}\right) + 4f\left(\frac{7}{4}\right) + f(2) \right]$$

$$\frac{1/4}{3} \left[0 + 0,84703 + 0,80889 + 2,20261 + 0,63027 \right]$$

$$\frac{1}{12} \left[4,48880 \right] = 0,37406$$

I	a	error
1	0,37467	
2	0,37406	0,16 %