

Solution 23.3

	x	$f(x)$
x_{i-2}	1.8	6.049647464
x_{i-1}	1.9	6.685894442
x_i	2	7.389056099
x_{i+1}	2.1	8.166169913
x_{i+2}	2.2	9.025013499

Both the first and second derivatives have the same value,

$$\text{truth} = e^2 = 7.389056099$$

The results are summarized as

	first-order	second-order
First derivative	7.401377351	7.389031439
	-0.166750%	0.000334%
Second derivative	7.395215699	7.389047882
	-0.083361%	0.000111%