Assignment 2

Apply Golden, Bisection, Secant and Newton methods on these different test functions.

			Number of Function Evaluations				
Minimize	x^*	$f(x^*)$	**Golden**	**Bisection**	**Cubic**	**Newton**	**Secant**
$3x^4 + (x-1)^2$ $0 \le x \le 4$	0.451	0.426	16	36	36	35	346
$-4x \sin x$ $0 \le x \le \pi$	2.029	−7.28	14	36	24	20	32
$2(x-3)^2 + e^{0.5x^2}$ $0 \le x \le 100$	1.591	7.516	14	36	–	275	–
$3x^2 + \frac{12}{x^3} - 5$ $0.5 \le x \le 2.5$	1.431	5.238	14	32	28	20	604
$2x^2 + \frac{16}{x}$ $1 \le x \le 5$	1.587	15.12	12	36	28	25	70

The source code was written as MATLAB code in the book, so I converted it into Python. The output was slightly different as shown here but the result was same, the Golden method was the best method.