

question 1

$$x^{**2} - \sin(x)^{**2} - 4*x + 1$$

by bisection method						
n	a	b	f(b)	c=a+b/2	F(c)	update
1	0	1	-2.7081	0.5	-0.9798	b=c
2	0	0.5	-0.9798	0.25	0.0013	a=c
3	0.25	0.5	-0.9798	0.375	-0.4935	b=c
4	0.25	0.375	-0.4935	0.3125	-0.2469	b=c
5	0.25	0.3125	-0.2469	0.2812	-0.1229	b=c
6	0.25	0.2812	-0.1229	0.2656	-0.0609	b=c
7	0.25	0.2656	-0.0609	0.2578	-0.0298	b=c
8	0.25	0.2578	-0.0298	0.2539	-0.0143	b=c
9	0.25	0.2539	-0.0143	0.252	-0.0065	b=c
10	0.25	0.252	-0.0065	0.251	-0.0026	b=c
11	0.25	0.251	-0.0026	0.2505	-0.0007	b=c
12	0.25	0.2505	-0.0007	0.2502	0.0003	a=c

by regula false method						
n	x0	x1	f(x1)	x2	f(x2)	Update
1	0	1	-2.7081	0.2697	-0.077	x1=x2
2	0	0.2697	-0.077	0.2504	-0.0003	x1=x2

by newton raphson				
n	x0	f'(x0)	x1	Update
1	0.5	-3.8415	0.2449	x0=x1
2	0.2449	-3.9806	0.2503	x0=x1
3	0.2503	-3.9793	0.2503	x0=x1

by secant method						
n	x0	f(x0)	x1	f(x1)	x2	f(x2)
1	0	1	1	-2.7081	0.2697	-0.077
2	1	-2.7081	0.2697	-0.077	0.2483	0.008
3	0.2697	-0.077	0.2483	0.008	0.2503	0

question 2

$$x^{**3} - 5*x - 9$$

by bisection method

n	a	f(a)	b	f(b)	a+b/2	f(c)
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1	2	-11	3	3	2.5	-5.875
2	2.5	-5.875	3	3	2.75	-1.9531
3	2.75	-1.9531	3	3	2.875	0.3887
4	2.75	-1.9531	2.875	0.3887	2.8125	-0.8152
5	2.8125	-0.8152	2.875	0.3887	2.8438	-0.2216
6	2.8438	-0.2216	2.875	0.3887	2.8594	0.0814
7	2.8438	-0.2216	2.8594	0.0814	2.8516	-0.0706
8	2.8516	-0.0706	2.8594	0.0814	2.8555	0.0053
9	2.8516	-0.0706	2.8555	0.0053	2.8535	-0.0327
10	2.8535	-0.0327	2.8555	0.0053	2.8545	-0.0137
11	2.8545	-0.0137	2.8555	0.0053	2.855	-0.0042
12	2.855	-0.0042	2.8555	0.0053	2.8552	0.0005
13	2.855	-0.0042	2.8552	0.0005	2.8551	-0.0018
14	2.8551	-0.0018	2.8552	0.0005	2.8552	-0.0006
15	2.8552	-0.0006	2.8552	0.0005	2.8552	0

by regula false method						
n	x0	f(x0)	x1	f(x1)	x2	f(x2)
1	2	-11	3	3	2.7857	-1.3109
2	2.7857	-1.3109	3	3	2.8509	-0.0839
3	2.8509	-0.0839	3	3	2.8549	-0.0051
4	2.8549	-0.0051	3	3	2.8552	-0.0003

by newton raphson					
n	x0	f(x0)	f'(x0)	x1	Update
1	2.5	-5.875	13.75	2.9273	x0=x1
2	2.9273	1.4472	20.7068	2.8574	x0=x1
3	2.8574	0.0426	19.4939	2.8552	x0=x1
4	2.8552	0	19.4565	2.8552	x0=x1

by secant method						
n	x0	f(x0)	x1	f(x1)	x2	f(x2)
1	2	-11	3	3	2.7857	-1.3109
2	3	3	2.7857	-1.3109	2.8509	-0.0839
3	2.7857	-1.3109	2.8509	-0.0839	2.8553	0.0026
4	2.8509	-0.0839	2.8553	0.0026	2.8552	0

question 3

$$2*x**3-9.5*x+7.5$$

by bisection method		
it will hav root 1		
x	0	1

f(x)	7.5	0
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by regula false method		
x	0	1
f(x)	7.5	0

by newton raphson					
n	x0	f(x0)	f'(x0)	x1	Update
1	5	210	140.5	3.5053	$x_0 = x_1$
2	3.5053	60.3422	64.2244	2.5658	$x_0 = x_1$
3	2.5658	16.9074	29.9995	2.0022	$x_0 = x_1$
4	2.0022	4.5319	14.5527	1.6908	$x_0 = x_1$
5	1.6908	1.1046	7.6525	1.5464	$x_0 = x_1$
6	1.5464	0.2054	4.8488	1.5041	$x_0 = x_1$
7	1.5041	0.0165	4.0736	1.5	$x_0 = x_1$
8	1.5	0.0001	4.0007	1.5	$x_0 = x_1$

by secant method		
x	0	1
f(x)	7.5	0

question 4

$$2x^2 - 5x + 3$$

by bisection method					
x	-2	-1	0	1	2
f(x)	21	10	3	0	1

by regula false method						
1	-5	2	7	1.4167	-2.147	$x_0 = x_2$
2	1.4167	-2.147	2	7	1.5536	-0.6076
3	1.5536	-0.6076	2	7	1.5892	-0.1506
4	1.5892	-0.1506	2	7	1.5979	-0.0361
5	1.5979	-0.0361	2	7	1.6	-0.0086
6	1.6	-0.0086	2	7	1.6004	-0.002
7	1.6004	-0.002	2	7	1.6006	-0.0005

by newton raphson		
x	0	1
f(x)	3	0

by secant method					
x	-2	-1	0	1	2
f(x)	21	10	3	0	1