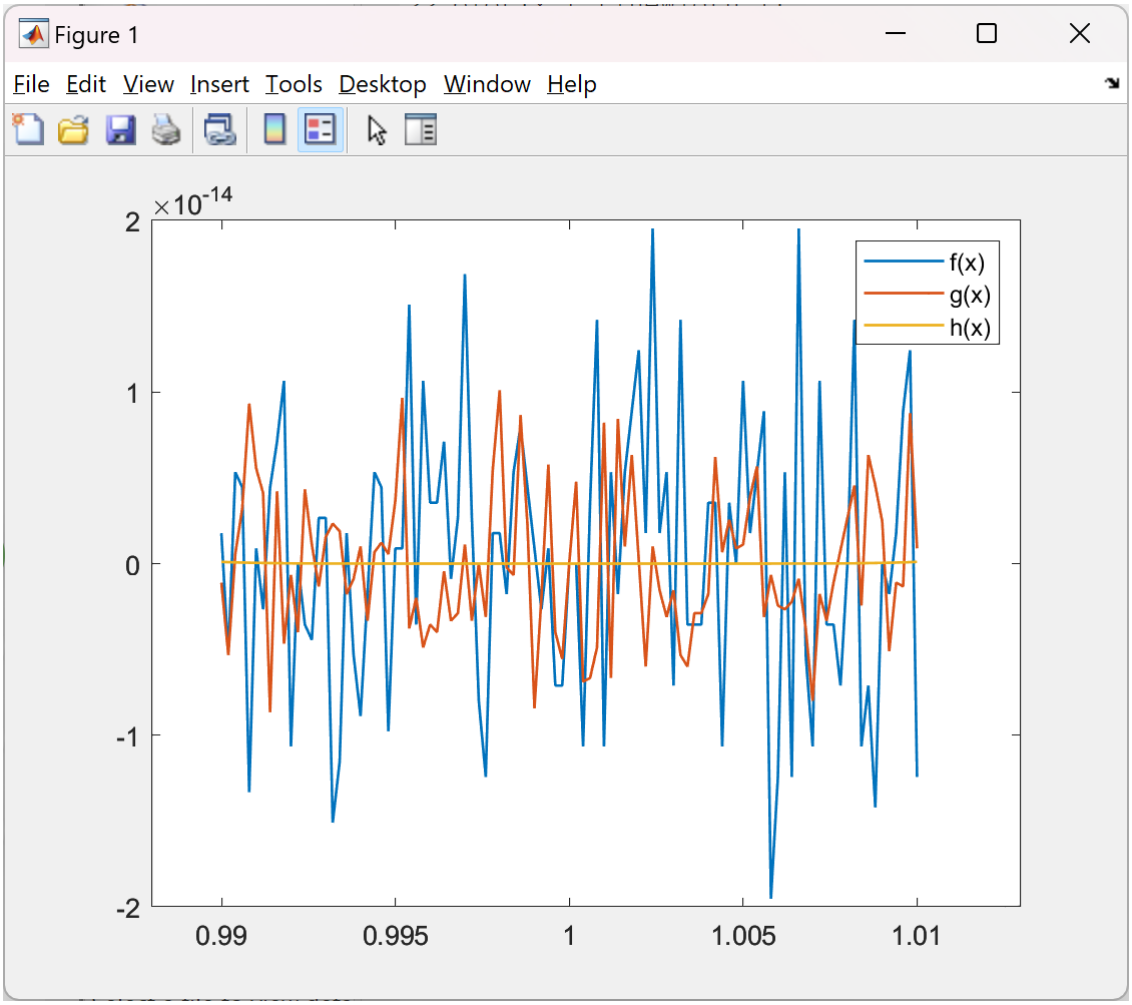
Report Chapter 4

Question A.



From the figure above we can conclude that f(x) have the most significant error , follow up is g(x) and h(x) have the least significant error.This is because f(x) include a lot of multiplication ,thus a lot of round of error was accumulate.For g(x),the number of multiplication have reduce compare with f(x), thus , significant error of g(x) was less than f(x).Last,h(x) have the least number of multiplication.

Question B.

(1)

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UFL = 0.5
OFL = 3.5
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(2)

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Normal number in F:
1.00*2^-1
-1.00*2^-1
1.01*2^-1
-1.01*2^-1
1.10*2^-1
-1.10*2^-1
1.11*2^-1
-1.11*2^-1
1.00*2^0
-1.00*2^0
1.01*2^0
-1.01*2^0
1.10*2^0
-1.10*2^0
1.11*2^0
-1.11*2^0
1.00*2^1
-1.00*2^1
1.01*2^1
-1.01*2^1
1.10*2^1
-1.10*2^1
1.11*2^1
-1.11*2^1

#F = 25
```

Cardinality of F=2^3(1-(-1)+1)+1=25=#F

(d)

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Subnormal number in F:
0.01*2^-1
-0.01*2^-1
0.10*2^-1
-0.10*2^-1
0.11*2^-1
-0.11*2^-1
```
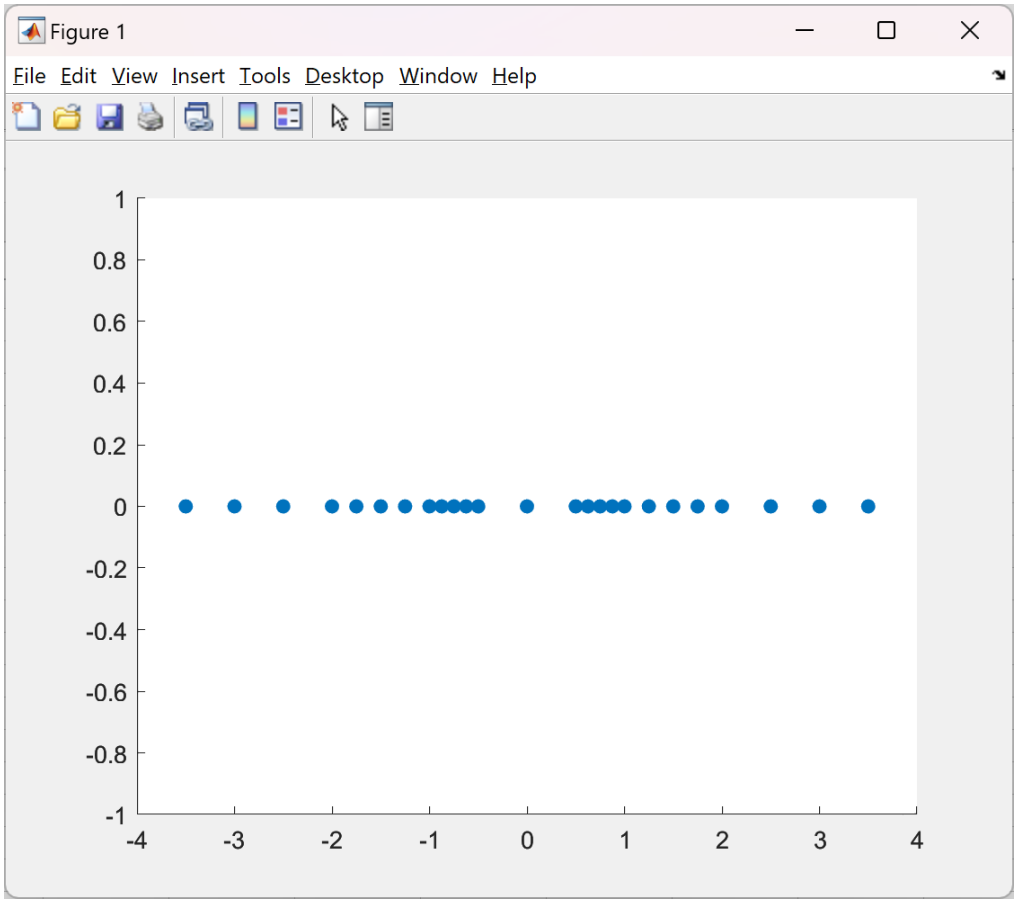

(c)



(e)

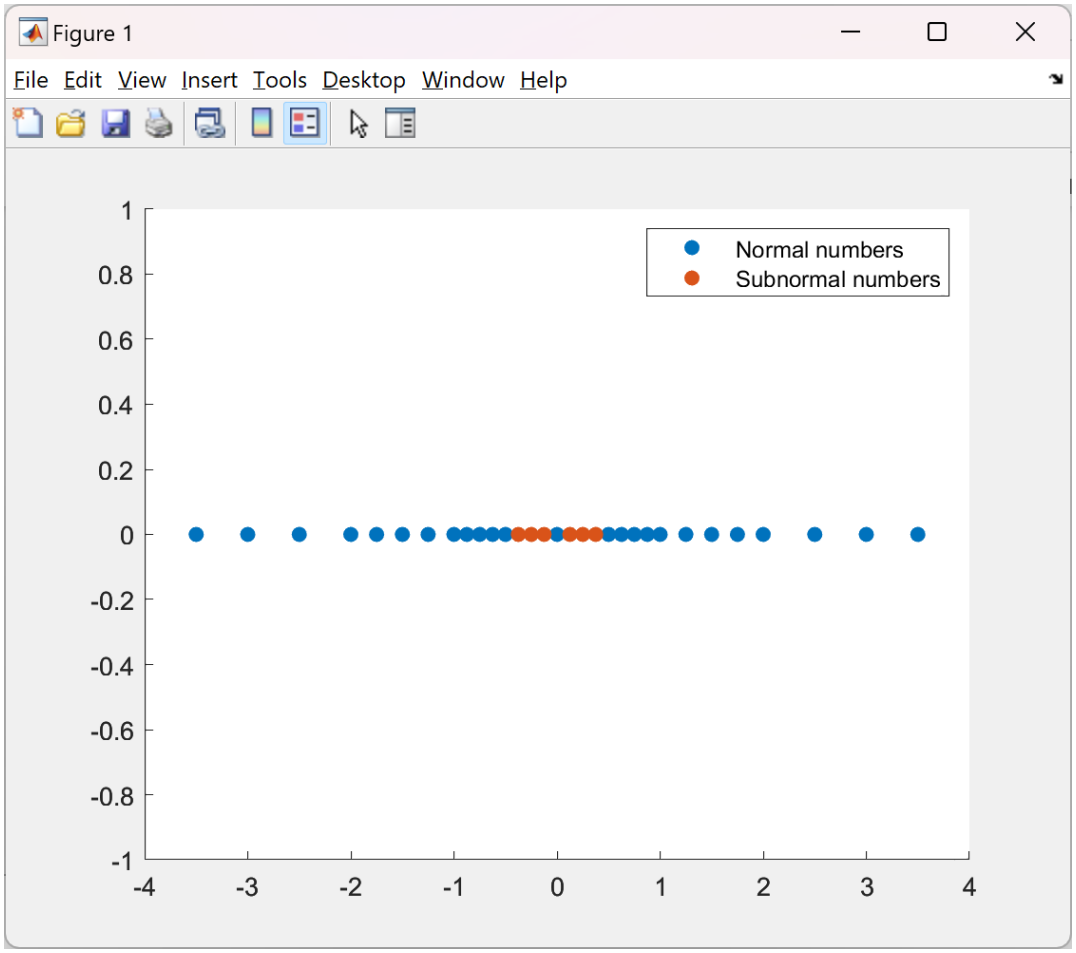


Figure 1
File Edit View Insert Tools Desktop Window Help
Normal numbers
Subnormal numbers
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-4
-3
-2
-1
0
1
2
3
4