

Assignment #2

Let

$$f(x) = \begin{cases} 3x - 2 & , x \leq 1 \\ 3 - x & , 1 < x \leq 4 \\ \frac{2}{3}x - 1 & , x > 4 \end{cases}$$

and

$$g(x) = \begin{cases} 7 - 3x & , x > -1 \\ \frac{4}{3} & , x = -1 \\ 0.5x - \frac{2}{3} & , x < -1 \end{cases}$$

Write, run, and test a Fortran 90 program, which has the following features:

1. When the user runs the program, he/she gets a menu like this:

Press 1 for $(g \circ f)(x)$

Press 2 for $(f \circ g)(x)$

2. When the user selects 1 or 2, he/she gets one of the jobs indicated in the above menu calculated and displayed in a format similar to the one we have in the sample run below. If the first option is selected, then the user should be able to enter (as an input) any real number x and gets back $(g \circ f)(x)$ displayed on the screen and then the following must be displayed on the screen:

Continue (Y/N)?

If the user selects Y or y, then the program should return to the menu screen. If the user selects N or n, the program must quit.

If the second option is selected, then the user should be able to enter (as an input) any real number x and gets back $(f \circ g)(x)$ displayed on the screen and then the following must be displayed on the screen:

Continue (Y/N)?

If the user selects N or n, the program must quit. If the user hits any other key, then the program should return to the menu screen.

3. If the user selects a key different than 1 or 2, the program should not stop running. But, the user must get the following displayed on the screen:

Continue (Y/N)?

If the user selects Y or y, then the program should return to the menu screen. If the user selects N or n, the program must quit.

Here are two sample runs:

===== First sample run starts here. =====

Press 1 for $(g \circ f)(x)$

Press 2 for $(f \circ g)(x)$

1

Enter your value of x :

3.3

$$(g \circ f)(3.3) = 7.9.$$

Continue (Y/N)?

Y

Press 1 for $(g \circ f)(x)$

Press 2 for $(f \circ g)(x)$

===== First sample run ends here. =====

===== Second sample run starts here. =====

Press 1 for $(g \circ f)(x)$

Press 2 for $(f \circ g)(x)$

h

Continue (Y/N)?

y

Press 1 for $(g \circ f)(x)$

Press 2 for $(f \circ g)(x)$

===== Second sample run ends here. =====

Do not forget to run and test your program.

NOTE: You should only use the material of the first four chapters only.