Samuel Razumovskiy
109343605
#2
Dr. Zagrodzki

Task 1.

Get variables x and y from user
Divide x by y and store into variable z
Check if x<z<y and return true

Code:

```
% Name: Samuel Razumovskiy
% Section: 108
% sara6569@colorado.edu
% Calculates the addition, subtraction, multiplication, division, and power
% of two numbers
clear,clc

input1 = input('first number '); %asks for user input
input2 = input('second number ');

a = input1+input2; % adds both values
fprintf('%d + %d = %d\n',input1,input2,a)

s = input1-input2; % subtracts both values
fprintf('%d - %d = %d\n',input1,input2,s)

m = input1*input2; % multiplies both values
fprintf('%d * %d = %d\n',input1,input2,m)

d = input1/input2; % divides both values
fprintf('%d / %d = %d\n',input1,input2,d)

p = input1^input2; % puts one to the power of the other
fprintf('%d ^ %d = %d\n',input1,input2,p)

z = input1/input2;
if input1<z && z<input2
        out=true;
else
        out=false;
end
```

Task 2.

```
function out = addFunc(input1,input2)
% addFunc % adds both values
out = input1+input2;
fprintf('%d + %d = %d\n',input1,input2,out) %prints values
End

function out = subtractFunc( input1, input2)
% subtractFunc % subtracts both values
out = input1-input2;
fprintf('%d - %d = %d\n',input1,input2,out)
end

function out = multFunc( input1, input2)
% multFunc % multiplies both values
out = input1*input2;
fprintf('%d * %d = %d\n',input1,input2,out)
End

function out = divbyFunc( input1, input2)
% divbyFunc divides both values
out = input1/input2;
fprintf('%d / %d = %d\n',input1,input2,out)
End

function out = divintoFunc( input1, input2)
% divintoFunc puts one to the power of the other
out = input1^input2;
fprintf('%d ^ %d = %d\n',input1,input2,out)
End

function out = quotientInBoundsFunc( input1, input2)
% quotientInBoundsFunc divides input1 by input2 and sees if result is greater than input1 and
%less than input2
z = input1/input2;
if input1<z && z<input2
        out=true;
else
        out=false;
end
End
```

Task 3.

```
% Name: Samuel Razumovskiy
% Section: 108
% sara6569@colorado.edu
% Calculates the addition, subtraction, multiplication, division, and power
% of two numbers
clear,clc

input1 = input('first number '); %asks for user input
input2 = input('second number ');

a = addfunc(input1,input2);
s = subtractFunc(input1,input2);
d = divbyFunc(input1,input2);
m = multFunc(input1,input2);
p = divintoFunc(input1,input2);
z = quotientInBoundsFunc(input1,input2);
```

Task 4.

Script Code:

```
% Name: Samuel Razumovskiy
% Section: 108
% sara6569@colorado.edu
clear,clc

tcold = input('Input the cold temperature ');
thot = input('Input the hot temperature ');
eff = carnotFunc(tcold,thot);

fprintf('The carnot efficiency = %.3f/n', eff)
```

Function Code:

```
function eff = carnotFunc(Tcold,Thot)
% carnot efficiency calculator

eff = 1-Tcold/Thot;

End
```

Task 5.

A. 8
B. If (X && Y) || Z
C.

X	Y	Z	Out
0	0	0	0
1	0	0	0
0	1	0	0
0	0	1	1
1	1	0	1
0	1	1	1
1	0	1	1
1	1	1	1