**Homework 2**

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# Question 1:

funn <- function(x){

if(x<1){

y <- (5/((x-1)^2))

print(y)

}

if(x==1){

y<- 2

print(y)

}

if(x>1){

y <- (5/((x-1)^3))

print(y)

}

}

funn(1)

# [1] 2

funn(10)

# [1] 0.006858711

funn(0.3)

# [1] 10.20408

# Question 2:

fib <- function(n) {

a = 0

b = 1

current = 2

if(n <= 0) {

print("Enter a +ve integer")

}

else if(n == 1) {

print("Fibonacci seq Nth value:")

print(a)

}

else if(n == 2) {

print("Fibonacci seq Nth value:")

print(b)

}

else{

while(current < n) {

num = a + b

a=b

b=num

current = current +1

}

print("Fibonacci sequence Nth value:")

print(num)

}

}

fib(1)

# [1] "Fibonacci sequence nth value:"

# [1] 0

fib(2)

# [1] "Fibonacci sequence Nth value:"

# [1] 1

fib(100)

# [1] "Fibonacci sequence Nth value:"

# [1] 2.18923e+20

# Question 3:

S1 = c(1,3,5,7)

S2 =c(2,4,6,10)

c(rbind(S1, S2))

# [1] 1 2 3 4 5 6 7 10

# Question 4:

part <- function(pivot,vect){

p1 <- vect[vect < pivot | vect == pivot]

p2 <- vect[vect > pivot]

return(list(p1,p2))

}

part(6,c(1, 5, 3, 7, 9, 6, 4, 2, 10, 8))

# [[1]]

# [1] 1 5 3 6 4 2

# [[2]]

# [1] 7 9 10 8

part(50,sample(1:100, 100, replace=FALSE))

# [[1]]

# [1] 39 45 26 49 32 28 43 13 9 6 35 29 12 40 48 3 19 2 16 27 44 7 1 10 5 24 18 47 20 23 41 34 50 22 4 37 8 46 11 38 30 25 15 14

# [45] 33 31 36 21 42 17

# [[2]]

# [1] 94 86 73 82 60 63 77 78 93 67 79 89 58 54 87 97 84 100 92 55 56 88 74 64 71 52 90 68 70 72 81 91 59

# [34] 57 76 85 61 53 98 83 99 66 62 80 96 69 51 75 95 65