Homework_4

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2025-02-05

#Problem 1

```
x<- 1.1
a<-2.2
b<-3.3

#part a

z<- x^(a^b)
print(z)
```

```
## [1] 3.61714
```

```
#output:
#[1] 3.61714

#part b

z<-(x^a)^b
print(z)
```

```
## [1] 1.997611
```

```
#output:
#[1] 1.997611

#part c

z<-(3*x^3)+(2*x^2)+1
print(z)
```

```
## [1] 7.413
```

```
#output
#[1] 7.413
```

#Problem 2

```r
#first vector
my_vec<-c(seq(1,8),seq(7,1))
print(my_vec)
```

```
##  [1] 1 2 3 4 5 6 7 8 7 6 5 4 3 2 1
```

```r
#output:
#[1] 1 2 3 4 5 6 7 8 7 6 5 4 3 2 1

#second vector
my_vec2<-c(1:5)
rep(x=my_vec2,times=my_vec2)
```

```
##  [1] 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5
```

```r
#output:
#[1] 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5

#third vector
my_vec3<-c(5:1)
my_vec<-c(1:5)
rep(x=my_vec3, times=my_vec)
```

```
##  [1] 5 4 4 3 3 3 2 2 2 2 1 1 1 1 1
```

```r
#output:
#[1] 5 4 4 3 3 3 2 2 2 2 1 1 1 1 1
```

#Problem 3

```r
z<-runif(2)
print(z)
```

```
## [1] 0.01413388 0.20127710
```

```r
x<-z[1]
y<-z[2]
print(x)
```

```
## [1] 0.01413388
```

```r
print(y)
```

```
## [1] 0.2012771
```

```r
r<-sqrt(x^2+y^2)
print(r)
```

```
## [1] 0.2017727
```

```r
theta<-asin(y/r)
print(theta)
```

```
## [1] 1.50069
```

```r
polar<-c(r,theta)
print(polar)
```

```
## [1] 0.2017727 1.5006904
```

```r
#ouput:
#> z<-runif(2)
#> print(z)
#[1] 0.5475164 0.3287697
#> x<-z[1]
#> y<-z[2]
#> print(x)
#[1] 0.5475164
#> print(y)
#[1] 0.3287697
#> r<-sqrt(x^2+y^2)
#> print(r)
#[1] 0.6386421
#> asin(y/r)
#[1] 0.5407684
#> r<-sqrt(x^2+y^2)
#> print(r)
#[1] 0.6386421
#> theta<-asin(y/r)
#> print(theta)
#[1] 0.5407684
#> polar<-c(r,theta)
#> print(polar)
#[1] 0.6386421 0.5407684
```

#Problem 4

```r
queue <- c("sheep", "fox", "owl", "ant")
print(queue)
```

```
## [1] "sheep" "fox"   "owl"   "ant"
```

```r
#a
queue<-c(queue,'serpent')
print(queue)
```

```
## [1] "sheep"   "fox"     "owl"     "ant"     "serpent"
```

```r
#b
queue<-queue[-c(1)]
print(queue)
```

```
## [1] "fox"     "owl"     "ant"     "serpent"
```

```r
#c
queue<-c('donkey', queue)
print(queue)
```

```
## [1] "donkey"  "fox"     "owl"     "ant"     "serpent"
```

```r
#d
queue<-queue[-c(5)]
print(queue)
```

```
## [1] "donkey" "fox"    "owl"    "ant"
```

```r
#e
queue<-queue[-c(3)]
print(queue)
```

```
## [1] "donkey" "fox"    "ant"
```

```r
#f
which(queue=='ant')
```

```
## [1] 3
```

```r
queue<-c(queue[1:2], 'aphid',queue[3])
print(queue)
```

```
## [1] "donkey" "fox"    "aphid"  "ant"
```

```r
#g
which(queue=='aphid')
```

```
## [1] 3
```

#output

queue <- c(“sheep”, “fox”, “owl”, “ant”) print(queue) [1] “sheep” “fox” “owl” “ant” #a queue<-c(queue,‘serpent’) print(queue) [1] “sheep” “fox” “owl” “ant” “serpent” #b queue<-queue[-c(1)] print(queue) [1] “fox” “owl” “ant” “serpent” #c queue<-c(‘donkey’, queue) print(queue) [1] “donkey” “fox” “owl” “ant” “serpent” #d queue<-queue[-c(5)] print(queue) [1] “donkey” “fox” “owl” “ant”
#e queue<-queue[-c(3)] print(queue) [1] “donkey” “fox” “ant”
#f which(queue==‘ant’) [1] 3 queue<-c(queue[1:2], ‘aphid’,queue[3]) print(queue) [1] “donkey” “fox” “aphid” “ant”
#g which(queue==‘aphid’) [1] 3

#Problem 5