Homework_4

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Problem 1

```
#a.
x = 1.1
a = 2.2
b = 3.3
z=x ^ (a^b)
print(z)
# result of z was 3.61714012551594

b.
x = 1.1
a = 2.2
b = 3.3
z=(x^a) ^ b
print(z)
# result was 1.99761087775261

c.
x = 1.1
a = 2.2
b = 3.3
z= 3*(x^3) + 2*(x^2) + 1
print(z)
# result was 7.413
```

Problem 2

```
a.
vector_a<-c(1:8,7:1)
print(vector_a)
#result:
[1] 1 2 3 4 5 6 7 8 7 6 5 4 3 2 1

b.
vector_b <- rep(x=1:5,times=1:5)
print(vector_b)
#result:
[1] 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5

c.
vector_c <- rep(x=5:1,times=1:5)
print(vector_c)
#result:
[1] 5 4 4 3 3 3 2 2 2 2 1 1 1 1 1
```

Problem 3

```
library(ggplot2)
set.seed(2)
z <- runif(2)
qplot(x=z)
x=0.185
y=0.701
r= sqrt(x^2+y^2)
print(r)
#result r was 0.7250007
theta=atan(y/x)
print(theta)
#Result theta was 1.312771

#observation that tan^1=atan function
```

Problem 4

```
#General set up of the queue
queue(z)
print(z)
queue <- c("sheep", "fox", "owl", "ant")
z2 <- c("sheep"=1, "fox"=2, "owl"=3, ant"=4)
print(z2)
#Result
sheep   fox  owl ant
    1     2    4   3

a.
queue(z)
print(z)
queue <- c("sheep", "fox", "owl", "ant", "serpent")
z2 <- c("sheep"=1, "fox"=2, "owl"=3, "ant"=4, "serpent"=5 )
print(z2)
#Result
  sheep     fox     owl     ant serpent
      1       2       3       4       5
b.
z2 <- c("fox"=1, "owl"=2,  "ant"=3, "serpent"=4 )
print(z2)
#Result
    fox     owl ant  serpent
      1      2    3       4

c.
z2 <- c("donkey"=1, "fox"=2, "owl"=3, "ant"=4, "serpent"=5 )
print(z2)
#Result
 donkey     fox   owl   ant    serpent
      1       2    3     4       5

d.
z2 <- c("donkey"=1, "fox"=2, "ant"=3)
print(z2)
#Result
donkey    fox    ant
     1      2      3
e.
z2 <- c("sheep"=1, "fox"=2, "ant"=3, "serpent"=4 )
print(z2)
#Result
sheep     fox     ant    serpent
      1       2       3       4

f.
z2 <- c("sheep"=1, "fox"=2, "aphid"=3, "ant"=4, "serpent"=5 )
print(z2)
#Result
  sheep     fox   aphid     ant serpent
      1       2       3       4       5
```

```
g.Third position
```

Problem 5

```
x<-1:100
which(x%%2!=0 & x%%3!=0 & x%%7!=0)

Result:
 [1]  1  5 11 13 17 19 23 25 29 31 37 41 43 47 53 55 59 61 65 67 71 73 79 83 85 89 95 97
```