

# R

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## Atomic Vectors

1. Use the `sample()` function to simulate the roll of two dice (N=1000, roll the first dice a 1000 times and then the second dice a 1000 times). Count the number of outcomes that are odd and even. Produce the following vector as output (results should be the same as this, given that the `set.seed(99)` function is called.   
 > ans  
Number Odd Number Even 523 477
2. For the data generated, calculate the frequency of each outcome (i.e. the sum of the two dice values for each roll). The following vector should be generated, and the R function `table()` cannot be used, although it should be used to confirm the result.   
 > ans1  
2 3 4 5 6 7 8 9 10 11 12 28 72 84 108 128 162 123 127 86 54 28
3. Write a script to display the output of every 100th combined dice roll, starting at location 1, and using a boolean vector to extract the result. (Hint the `rep()` function could be useful for this). The R Functions to be used include: `. set.seed(99)`, to ensure that the results shown below are replicated. `. sample()` - to generate the random samples

### # Question 1

```
set.seed(99)
x <- c(1:6)
roll1 <- sample(x, 1000, replace = TRUE)
roll2 <- sample(x, 1000, replace = TRUE)
sampRoll <- roll1+roll2
ans <- c(length(sampRoll[sampRoll%%2!=0]), length(sampRoll[sampRoll%%2==0]))
names(ans) <- c('Number Odd', 'Number Even')
print(ans)

## Number Odd Number Even
##          523          477
```

### # Question 2

```
ans1 <- rep(0, 11)
names(ans1) <- 2:12
for (i in 2:12) {
  ans1[i-1] <- length(sampRoll[sampRoll==i])
}
print(ans1)
```

```
##      2      3      4      5      6      7      8      9     10     11     12
##  28   72   84  108  128  162  123  127   86   54   28
```

*# Question 3*

```
ans2 <- sampRoll[c(rep(F,99), T)]
print(ans2)
```

```
##  [1]  3  8  8  7  9 11 10  6  7  5
```