Assignment 2b

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Answer 1

```
v1 <- rep(1, 10)
v2 <- 1:10
v3 <- v2^2

X  <- rbind(v1, v2, v3)
```

(a) For equal weights, the weighted average is just the usual simple average.

```
colMeans(X)
```

```
##  [1]  1.000000  2.333333  4.333333  7.000000 10.333333 14.333333 19.000000
##  [8] 24.333333 30.333333 37.000000
```

(b)

```
w <- c(1, 2, 3)
colSums(X * w) / sum(w)
```

```
##  [1]  1.000000  2.833333  5.666667  9.500000 14.333333 20.166667 27.000000
##  [8] 34.833333 43.666667 53.500000
```

Answer 2

(a) Number of games won by a chess player who has played 20 games, with a probability of 30% of winning each game.

```
rbinom(1, 20, 0.3)
```

```
## [1] 7
```

(b) Number of games won by a couple of chess players who have played 20 games (not against each other). The first has a probability of 30% of winning each game, while the second has a probability of 40% of winning each game.

```
rbinom(2, 20, c(0.3, 0.4))
```

```
## [1] 2 7
```

(c) Number of games won by a couple of chess players. The first has played 30 games with a probability of 30% of winning each game, while the second has played 20 games with a probability of 40% of winning each game.

```
rbinom(2, c(30, 20), c(0.3, 0.4))
```

```
## [1] 10  9
```