Problem 1 - probability:

Theoretical mean of a fair die (1 to 6):

$$\mu = \frac{1+2+3+4+5+6}{6} = 3.5$$

Theoretical standard deviation for a fair die:

$$\sigma = \sqrt{\frac{(1-3.5)^2 + (2-3.5)^2 + (3-3.5)^2 + (4-3.5)^2 + (5-3.5)^2 + (6-3.5)^2}{6}} = \sqrt{\frac{17.5}{6}} \approx 1.71$$

in R:

Beräknad *sample-mean:* 3.511666…..

Beräknad *sample-standard-deviation:* 1.72476…..