1.

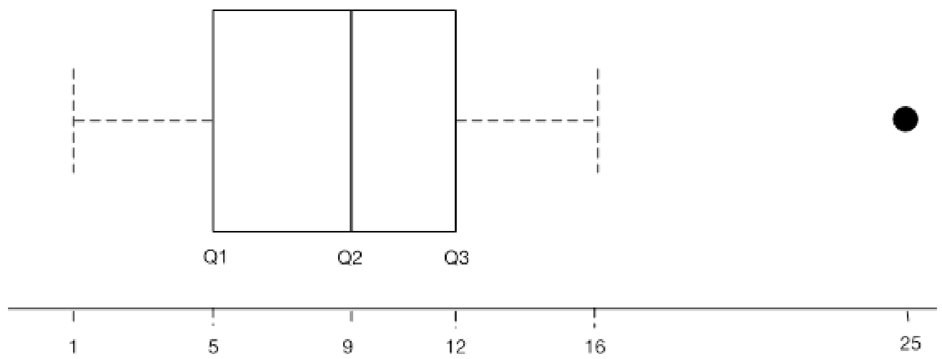
median : 1 , 3 , 3 , 4 , 6 , 6 , 7 , 8 , 10, 10, 10, 11 , 13, 15 , 16 , 25

Q_2 **= 9**

Q_1 : 1 , 3 , 3 , **4 , 6** , 6 , 7, 8 => Q_1 **= 5**

Q_3 : 10 , 10, 10, **11 , 13,** 15 , 16 , 25 => Q_3 **= 12**

IQR=12-5=7 1.5 IQR=10.5



It is symetric.
25 is outlier (because 25 > Q_3 + 1.5 IQR = 22.5)

2.

a) Distribution: symetric, 3 modes

b) (1*2 + 3*5 + 5*3 + 7*4 + 9*7 + 11*8 + 13*5 + 15*3 + 17*6 + 19*2) / 45=
= 461/45 = 10.2(4)

c) Median is in 10-12, because $x_{(23)}$ is in this interval.

Modes are in 2-4 , 10-12 and 16-18. (local max. of the histogram)

3.

$$\overline{\overline{\Omega}} = \binom{18}{12} = . . .$$

$$\overline{\overline{A}} = \binom{10}{6}\binom{8}{6} = . . . \qquad P(A) = \frac{\overline{\overline{A}}}{\overline{\overline{\Omega}}}$$

$$\overline{\overline{B}} = \binom{10}{5}\binom{8}{7} + \binom{10}{4}\binom{8}{8} = . . . \qquad P(B) = \frac{\overline{\overline{B}}}{\overline{\overline{\Omega}}}$$

4.

$$P(B) = P(A \cap B) + P(A' \cap B)$$
$$= P(A) + P(B) - P(A \cup B) \; + \; P(A'|B)P(B)$$

Let $P(B) = x$

$$x = 0.2 + x - \; 0.5 + 0.75\, x \qquad => \qquad x = 0.4$$

5. Using de Morgan's rule and independence

$P(A_1 \cup A_2 \cup A_3 \cup A_4 \cup A_5) = 1 - \; P(\,(A_1 \cup A_2 \cup A_3 \cup A_4 \cup A_5)'\,) =$
$= 1 - P(A_1' \cap A_2' \cap A_3' \cap A_4' \cap A_5') = 1 - P(A_1')\, P(A_2')\, P(A_3')\, P(A_4')\, P(A_5') =$
$=\ldots= \frac{5}{6}$