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

Organize the data:

-> 1, 3, 3, 4 | 6, 6, 7, 8, | 10, 10, 11, | 13, 15, 16, 25.

Total number = 16.

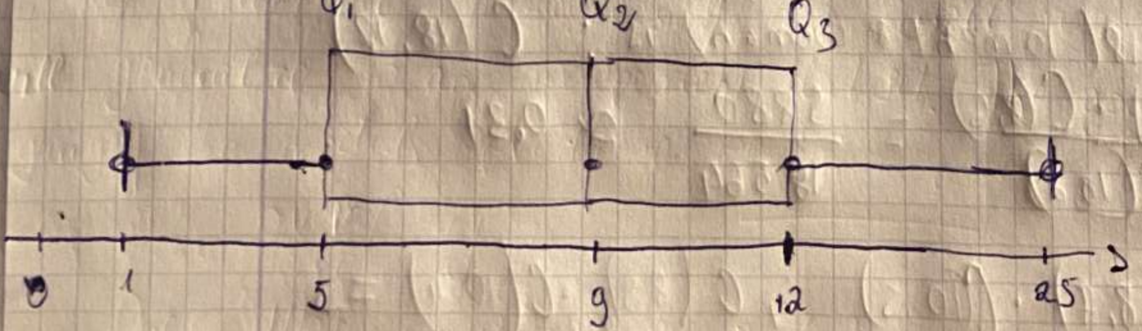
- $Q_2 = 8 + 10 : 2 = 9$
- $Q_1 = 4 + 6 : 2 = 5$
- $Q_3 = 11 + 13 : 2 = 12$

- Finding IQR (Interquartile range) =>

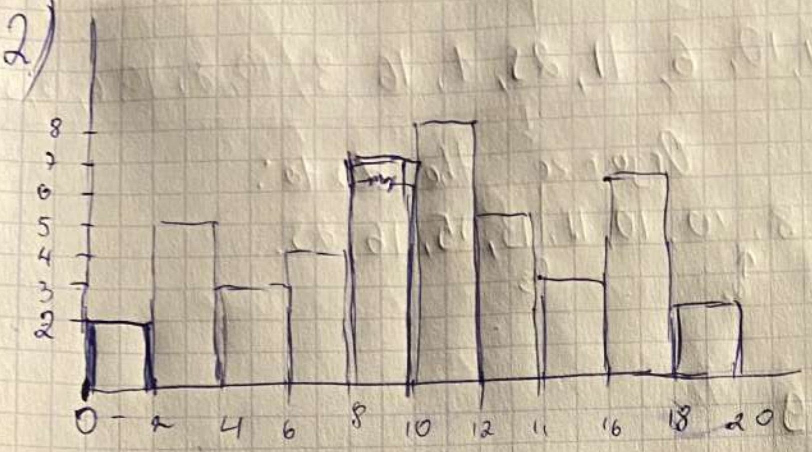
=> $IQR = Q_3 - Q_1 = 12 - 5 = 7$

- Lower Whisker = $Q_1 - 1,5 \cdot IQR = 5 - 10,5 = -5,5$.
  We do not poses the value lower than $-5,5$, so our whisker will be at the minimum, which is 1.

- Upper Whisker: $Q_3 + 1.5 \cdot IQR = 12 + 10.5 = 22.5$
  The largest point whichh is lower than 22.5 is 16.



2)



a) The histogram may be considered as unimodel.

b) Sum of midpoints · number = 461.

Mean = 461 / 45 = 10.24

c) • Total number of points = 45;
• The avarage will be 22 → 23 point;
• They lie in the 10-12 interval.
• So median is in 10-12 interval.

• Mode is something which determiness highest frequency.
In our case highest frequency is 8 which is in 10-12 interval. So mode is in 10-12 interval

3) a) Total number of ways of choosing a committee of 6 men & 6 women is: $C(10,6) \cdot (8,6)$

the total number of ways to choose a committee of 12 people out of which 18 (10 men + 8 woman) is: $C(18,12)$

$$P = \frac{C(10,6) \cdot C(8,6)}{C(18,12)} = \frac{5880}{18564} \approx 0.31$$

b) $C(8,7) \cdot C(10,5)$; $C(8,8) \cdot C(10,4) \Rightarrow$
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$\Rightarrow$ Total $= C(8,7) \cdot C(10,5) + C(8,8) \cdot C(10,4) \Rightarrow P(b) = \frac{2226}{18564} \approx$

≈ 0.1199

4) $P(A \cup B) = 0.5$
$P(A) = 0.2$
$P(A'|B) = 0{,}75$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$
$$0.5 = 0.2 + P(B) - P(A \cap B)$$

$$P(A'|B) = 1 - P(A|B) \Rightarrow P(A|B) = 0{,}25$$

$$P(A|B) = \frac{P(A \cap B)}{P(B)}$$

$$0{,}25 = \frac{P(A \cap B)}{P(B)}$$

$$P(A \cap B) = 0{,}25 P(B) \Rightarrow$$
$$\Rightarrow 0{,}5 = 0{,}2 + P(B) - 0{,}25 P(B)$$
$$0{,}5 = 0{,}2 + 0{,}75 P(B)$$
$$0{,}3 = 0{,}75 P(B)$$
$$P(B) = 0{,}4$$

5) $\sum P(A_i) = \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} = \frac{49}{60}$;

$P(A_1 \cap A_2) = \frac{1}{6}; \Rightarrow \sum P(A_1 \cap A_2) = \frac{49}{120}$;

$P(A_1 \cap A_2 \cap A_3) = \frac{1}{24}; \Rightarrow \sum P(A_i \cap A_j \cap A_k) = \frac{49}{720}$

$P(A_1 \cap A_2 \cap A_3 \cap A_4) = \frac{1}{120}; \Rightarrow \sum P(A_i \cap A_j \cap A_k \cap A_l) = \frac{49}{5040}$

$P(A_1 \cup A_2 \cup A_3 \cup A_4 \cup A_5) = \sum P(A_i) - \sum P(A_i \cap A_j) + \sum P(A_i \cap A_j \cap A_k) - \sum P(A_i \cap A_j \cap A_k \cap A_l) + P(A_1 \cap A_2 \cap A_3 \cap A_4 \cap A_5)$

$P(A_1 \cap A_2 \cap A_3 \cap A_4 \cap A_5) = \frac{1}{1440} \Rightarrow$

$$\Rightarrow P(A_1 \cup A_2 \cup A_3 \cup A_4 \cup A_5) = \frac{49}{60} - \frac{49}{120} + \frac{49}{720} - \frac{49}{5040} + \frac{1}{1440} =$$

$$= \frac{469}{720}$$