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1] H: Üniversite mezunu veya C partisine oy vermesi

$$P(H) = \frac{P(Z \cup C)}{250} = \frac{P(Z) + P(C) - P(Z \cap C)}{250}$$

x: ilk öğretim
y: Lise
z: Üniversite

$$\Rightarrow P(H) = \frac{65 + 105 - 15}{250} = \boxed{\frac{31}{50}}$$

2] $P(A|x) = \frac{P(A \cap x)}{P(x)} = \frac{25}{95} = \boxed{\frac{5}{19}}$

3] $\bar{X} < med < mod$ olduğu için __sağa yığılma sola çarpık.__

4] $\sum_{x=0}^{3} k \cdot \frac{1}{3^x} = 1$ $\Rightarrow \frac{k}{3^0} + \frac{k}{3^1} + \frac{k}{3^2} + \frac{k}{3^3} = 1$ $\Rightarrow \frac{40k}{27} = 1$

$$\Rightarrow \boxed{k = \frac{27}{40}}$$

5] $\underbrace{\int_{-\infty}^{0} f_x(x) \cdot dx}_{0} + \int_{0}^{1} f_x(x) + \underbrace{\int_{1}^{100} f_x(x)}_{0} = 1$ $\Rightarrow \int_{0}^{1} f_x(x) = 1$

$$\Rightarrow k \int_{0}^{1} x(1-x) \cdot dx = k \left[\frac{x^2}{2} \cdot \frac{x^3}{3} \right]_{0}^{1} = k \cdot \left[\left(\frac{1}{2} - \frac{1}{3} \right) - (0-0) \right] = 1$$

$$\Rightarrow k \cdot \frac{1}{6} = 1 \Rightarrow \boxed{k = 6}$$

CamScanner ile tarandı

6] $P(0,5 < x < 0,9) = \int_{0,5}^{0,9} 6(x - x^2) \cdot dx$

$\Rightarrow 6\left[\frac{x^2}{2} - \frac{x^3}{3}\right]_{0,5}^{0,9} = 6\left[\left(\frac{0,81}{2} - \frac{0,729}{3}\right) - \left(\frac{0,25}{2} - \frac{0,125}{3}\right)\right]$

$= 6\left[0,28 - \frac{0,604}{3}\right] = 2(0,236) = \boxed{0,472}$

7] $E(x) = 1 \cdot \frac{4}{9} + 2 \cdot \frac{2}{9} + 3 \cdot \frac{2}{9} + 4 \cdot \frac{1}{9} = \frac{18}{9}$

$\Rightarrow \boxed{E(x) = 2}$

8] $Var(x) = E(x^2) - (E(x))^2$

$E(x^2) = \sum_{x=1}^{4} x^2 \cdot f(x) = \left(1 \cdot \frac{4}{9}\right) + \left(2^2 \cdot \frac{2}{9}\right) + \left(3^2 \cdot \frac{2}{9}\right) + \left(4^2 \cdot \frac{1}{9}\right)$

$\Rightarrow E(x^2) = \frac{4 + 8 + 18 + 16}{9} = \frac{46}{9}$

$Var(x) = \frac{46}{9} - (2)^2 = \boxed{\frac{10}{9}}$

9 $\bar{X} = \dfrac{\sum t_i X_i}{\sum t_i}$

$\sum t_i X_i = (2,5 \times 1,5) + (3,75 \times 8) + (2,75 \times 6,5) + (3,25 \times 2) + (1,75 \times 3) +$

$(2,25 \times 5) + (4 \times 1,5) + (0 \times 2,5) = 80,625$

$\sum t_i = 1,5 + 8 + 6,5 + 2 + 3 + 5 + 1,5 + 2,5 = 30$

$\Rightarrow \bar{X} = \dfrac{80,625}{30} = 2,6875 \qquad \Rightarrow \boxed{\bar{X} \simeq 2,7}$

10 a) $\{(1,2), (1,5), (2,1), (2,4), (3,3), (4,2), (4,5), (5,1), (5,4), (6,3),$
$(3,6), (6,6)\}$

b) $E(x) = \sum\limits_{-\infty}^{\infty} x \cdot P_x(x)$

x	3	6	9	12
$P(x)$	$\frac{2}{12}$	$\frac{5}{12}$	$\frac{4}{12}$	$\frac{1}{12}$

$\Rightarrow E(x) = 3 \cdot \dfrac{2}{12} + 6 \cdot \dfrac{5}{12} + 9 \cdot \dfrac{4}{12} + 12 \cdot \dfrac{1}{12} = 7$

$E(2x-1) = 2E(x) - 1 = 14 - 1 = \boxed{13}$