Hamdi Utku Parali 19253510

1) $65 + 90 = 155$ $\quad 155/250 = 31/50$ //

2) $25/95 = 5/19$ //

3) $x < med < mod \Rightarrow$ sağa yığılma sola çarpıktır

4) $k \cdot \frac{1}{3^0} + k \cdot \frac{1}{3^1} + k \cdot \frac{1}{3^2} + k \cdot \frac{1}{3^3} = 1$

$k + k/3 + k/9 + k/27 = 1$

$40k/27 = 1$

$k = 27/40$ //

5) $\int_{-\infty}^{\infty} f(x)\,dx = 1$

$\underbrace{\int_{-\infty}^{0} fx(x)\,dx}_{0} + \int_{0}^{1} kx(1-x)\,dx + \underbrace{\int_{1}^{\infty} fx(x)\,dx}_{0} = 1$

$k \cdot \int_0^1 (x - x^2)\,dx = 1 \qquad k \cdot \left(\frac{x^2}{2} - \frac{x^3}{3}\right)\Big|_0^1 = 1$

$k/6 = 1 \qquad k = 6$ //

6) $P(0,5 \le x \le 0,9) = \int_{0,5}^{0,9} 6(x - x^2)$

$6\left[\frac{x^2}{2}\Big|_{0,5}^{0,9} - \frac{x^3}{3}\Big|_{0,5}^{0,9}\right]$

$6 \cdot \left(\frac{0,81}{2} - \frac{0,25}{2} - \left(\frac{0,729}{3} - \frac{0,125}{3}\right)\right)$

$6\left(0,28 - \frac{0,604}{3}\right) = 1,68 - 1,208 = 0,472$ //

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7) $E(x) = (4/9)\cdot 1 + (2/9)\cdot 2 + (2/9)\cdot 3 + (1/9)\cdot 4$

$E(x) = 4/9 + 4/9 + 6/9 + 4/9 = 18/9 = 2$ //

8) $E(y-\mu)^2 = \frac{4}{9}\cdot(1-0)^2 + \frac{2}{9}(2-0)^2 + \frac{2}{9}\cdot(3-0)^2 + \frac{1}{9}(4-0)^2$

$= \frac{4}{9}\cdot 1 + \frac{2}{9}\cdot 4 + \frac{2}{9}\cdot 9 + \frac{1}{9}\cdot 16$

$= \frac{4}{9} + \frac{8}{9} + 2 + \frac{16}{9} = \frac{46}{9}$ //

9) $\frac{80,625}{30} = 2,6875$ //

10) a) (1,2),(1,5),(2,1),(2,4),(3,3),(3,6),(4,2),(4,5),(5,1),(5,4),
(6,3),(6,6)

b)

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

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

$E(2x-1) = 13$ //