(4) c) $P(X=1)=0$ (X, 1 noktasında tanımlı değil!)

(10) d) (3) $E[2X+1] = \sum_{x=2}^{5}(2x+1).f(x) = 5\left(\frac{1}{10}\right)+7\left(\frac{2}{10}\right)+9\left(\frac{3}{10}\right)+11\left(\frac{4}{10}\right)=9$

$Var(-X+2)=?$

(3) $E[-X+2] = \sum_{x=2}^{5}(-x+2).f(x) = 0\left(\frac{1}{10}\right)+(-1)\left(\frac{2}{10}\right)+(-2)\left(\frac{3}{10}\right)+(-3)\left(\frac{4}{10}\right)=-2$

$Var(-X+2) = E\left[(-X+2-(-2))^2\right] = E\left[(-X+4)^2\right]$

(4) $= \sum_{x=2}^{5}(-x+4)^2.f(x) = 4\left(\frac{1}{10}\right)+1\left(\frac{2}{10}\right)+0\left(\frac{3}{10}\right)+1\left(\frac{4}{10}\right)=1$

(30) (3) a) (6) $\int_{-\infty}^{\infty}\int_{-\infty}^{\infty} f(x,y)\,dx\,dy = 1$ (2)

$\int_0^1\int_0^x cx\,dy\,dx = \int_0^1 (cxy)\Big|_{y=0}^{y=x} dx = \int_0^1 cx^2\,dx$ (2) $= \frac{cx^3}{3}\Big|_0^1 = \frac{c}{3}=1$ (2)

$\Rightarrow \boxed{c=3}$

(10) b) $f(x,y) \overset{?}{=} g(x).h(y)$ $\xrightarrow{E}$ X ve Y ras. değ. leri bağımsızdır. (2)
$\xrightarrow{H}$ X ve Y ras. değ. leri bağımlıdır.

(3) $g(x) = \int_0^x 3x\,dy = 3xy\Big|_{y=0}^{y=x} = 3x^2$, $0 \le x \le 1$

(3) $h(y) = \int_y^1 3x\,dx = \frac{3x^2}{2}\Big|_{x=y}^{x=1} = \frac{3}{2}(1-y^2)$, $0 \le y \le 1$

$3x \overset{?}{=} 3x^2 . \frac{3}{2}(1-y^2)$ (2)

$3x \neq \frac{9}{2}x^2(1-y^2) \Rightarrow$ X ve Y ras. değ. leri bağımlıdır.

(6) c) $P(0.2<X<0.7)$ (2) $= \int_{0.2}^{0.7} 3x^2\,dx = x^3$ (2) $\Big|_{0.2}^{0.7} = (0.7)^3-(0.2)^3 = 0.335$ (2)

(8) d) $P(0<X<0.5 \mid Y>0.25) = \frac{P(0<X<0.5,\ Y>0.25)}{P(Y>0.25)}$