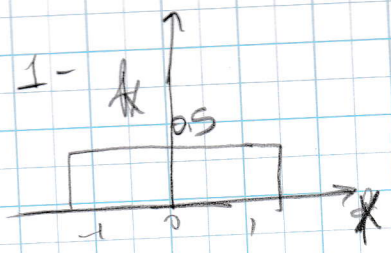
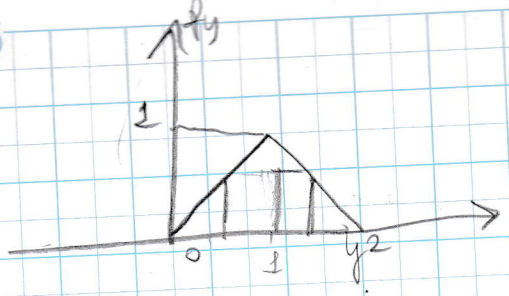
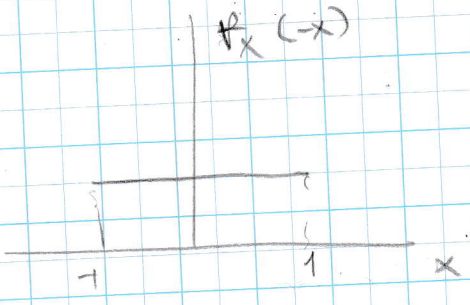
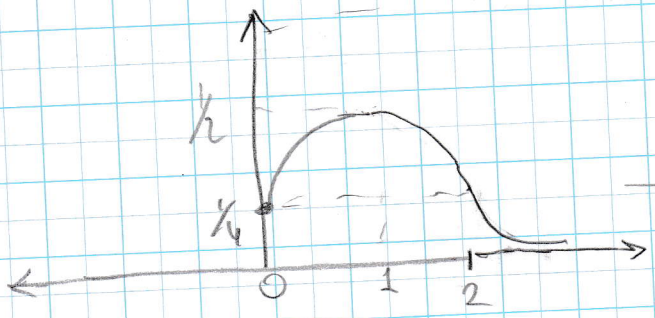
1-







2:



$$(f*g)(0) = \int_0^1 0{,}5 \cdot x \, dx$$

$$= \frac{x^2}{4}\Big|_0^1 = \frac{1}{4}$$

$$(f*g)(1) = \int_0^1 0{,}5 \cdot x \, dx + \int_1^2 0{,}5 \cdot 2 - x \, dx$$

$$= \frac{1}{4} + \frac{1}{4}$$

$$= \frac{1}{2}$$

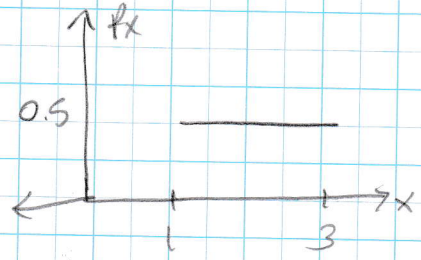
$$1 + \left(-\frac{x^2}{4}\Big|_1^2\right)$$

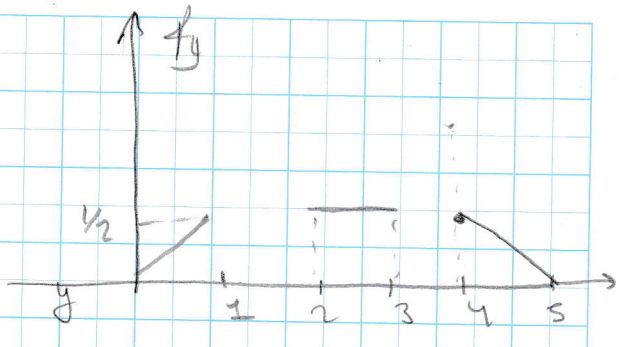
$$= 1 - 1 + \frac{1}{4} = \frac{1}{4}$$

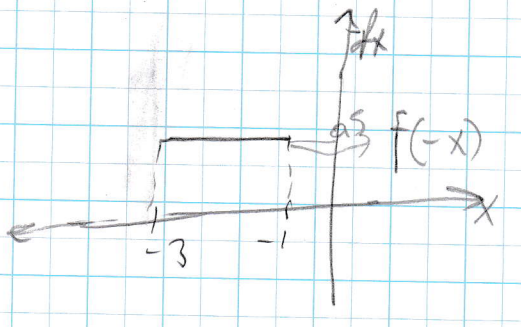
$$(f*g)(2) = \frac{1}{4}$$

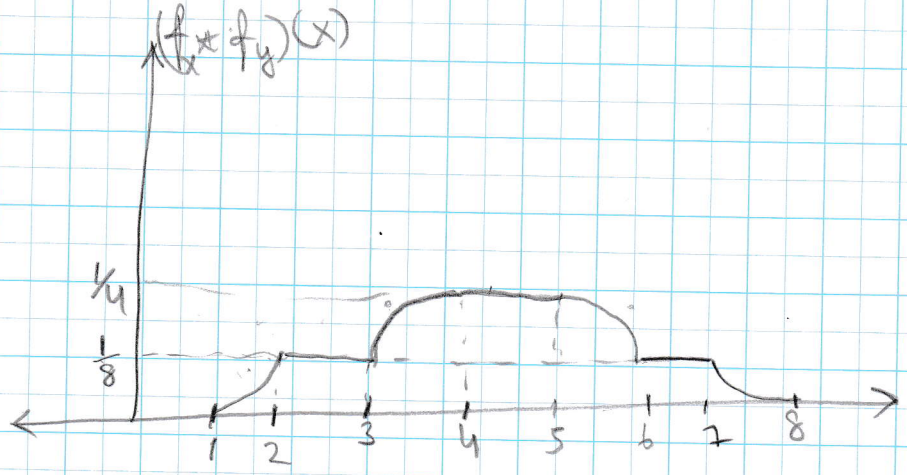
$$(f*g)(3) = 0$$

2-









$(f_x * f_y)(2) = \int_0^1 0{,}5 \cdot \frac{1}{2}\, dx = \frac{x^2}{8}\Big|_0^1 = \frac{1}{8}$

$(f_x * f_y)(4) = \int_2^3 0{,}5 \cdot 0{,}5\, dx = \frac{1}{4}$

$7 \cdot \frac{1}{4} - \frac{6}{8} = \frac{14-6}{8} = 1$

Altında kalan alan 1

3-

$$P(X \geq a) \leq \frac{E[X]}{a}$$

let $T = 100 - X$

$$P(T \geq 90) \leq \frac{E[T]}{90}$$

$$E[T] = 100 - E[X]$$

$$E[T] = 100 - 40 = 60$$

$$P(100 - X \geq 90) = \frac{6}{9} = \frac{2}{3}$$

$$P(100 - X \geq 90) = P(X \leq 10)$$

$$P(-X \geq -10)$$

$$P(X \leq 10)$$

4- $$P(|X-\mu|^2 \geq c^2) \leq \frac{E[(X-\mu)^2]}{c^2}$$

$$P(|X-\mu| \geq c) \leq \frac{\sigma^2}{c^2}$$

$$E[X] = \sum_{i=1}^{100} E[m] = E\left(\sum_{i=1}^{100} m\right) = 100 \cdot 3{,}5 = 350$$

iid olduklarından

m: Bir zarın belirten değeri (sonucunun)

$$var(X) = \sum_{i=1}^{100} var(m)$$

iid olduğundan

$$var(m) = E[X^2] - E[X]^2$$

$$= \frac{91}{6} - \frac{49}{4}$$

$$P(|X - 350| \geq 50) \leq \frac{100(2{,}91)}{50 \cdot 50}$$

$$P(|X - 350| \geq 50) \leq 0{,}11$$

[3 9 16 25 36