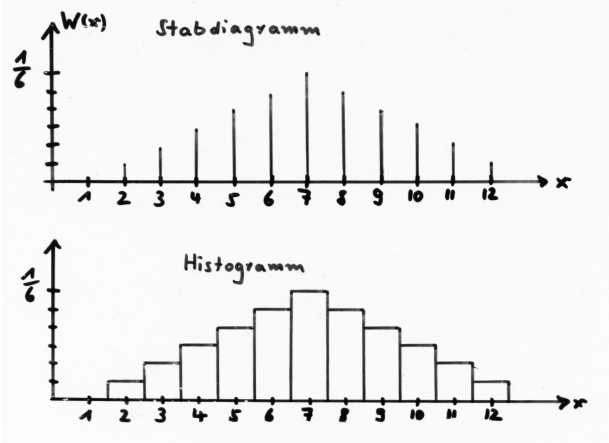
LK Mathematik * Wiederholung Zufallsgrößen * Lösung

a)

x	2	3	4	5	6	7	8	9	10	11	12
W(x) = P(X = x)	1/36	2/36	3/36	4/36	5/36	6/36	5/36	4/36	3/36	2/36	1/36

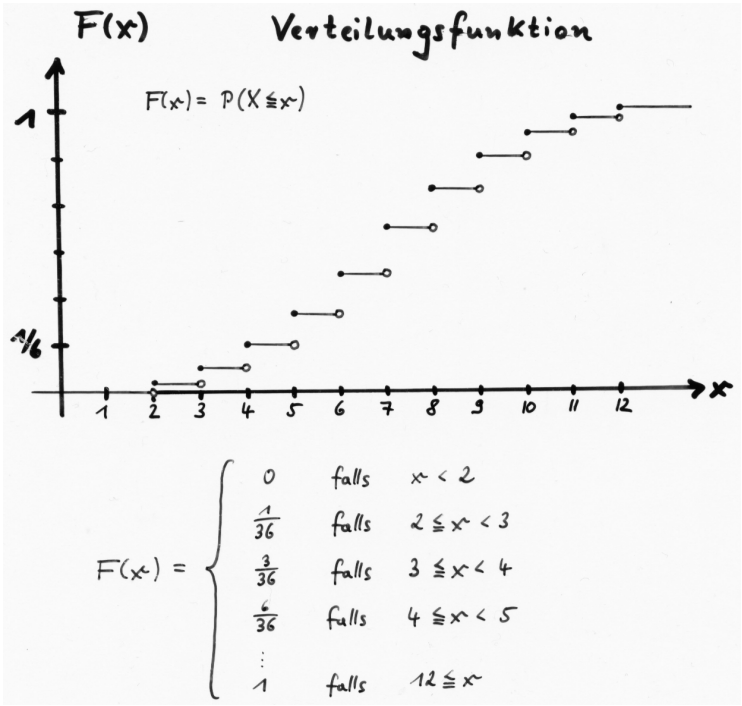


b) $P(X=3)=\frac{2}{36}=\frac{1}{18}$; $P(X=0{,}5)=0$; $P(3<x<6)=P(X=4)+P(X=5)=\frac{7}{36}$

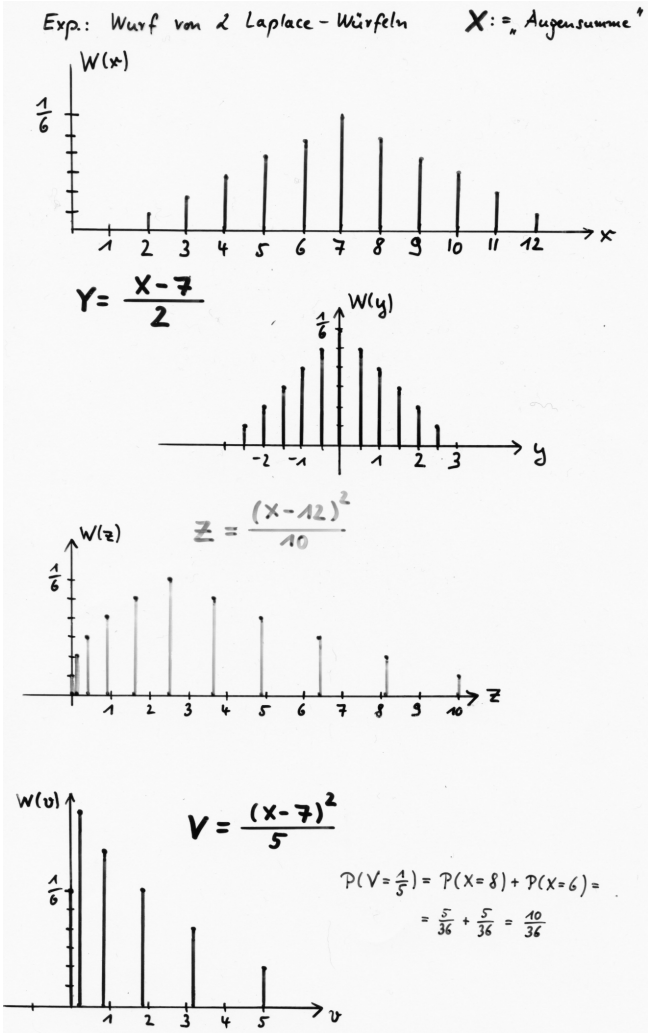
$W(4)=P(X=4)=\frac{3}{36}=\frac{1}{12}$; $F(4)=P(X\le 4)=\frac{1+2+3}{36}=\frac{6}{36}=\frac{1}{6}$

c) P(„Die Augensumme beträgt mindestens 9“) = $P(X\ge 9)=\frac{4+3+2+1}{36}=\frac{10}{36}=\frac{5}{18}$

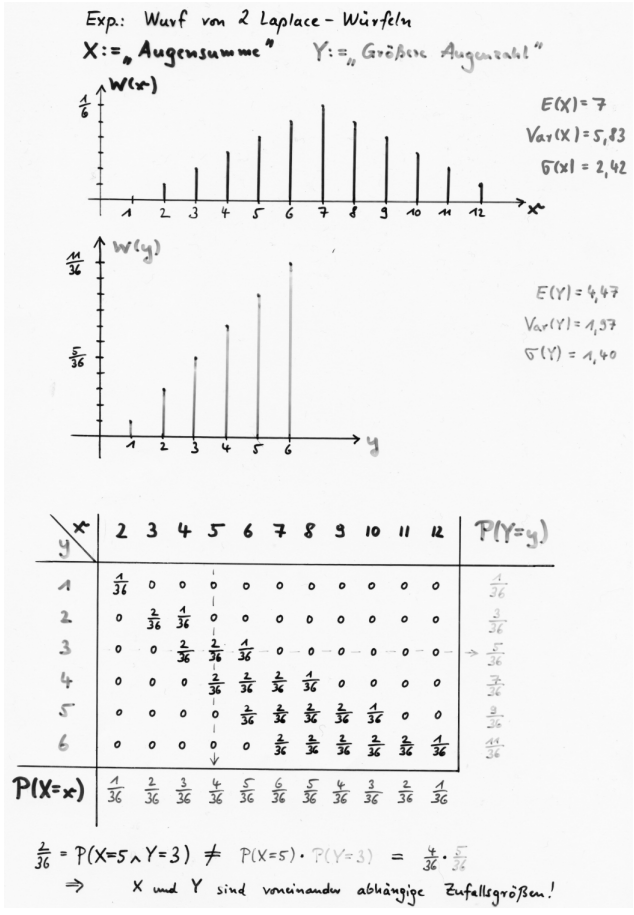
d)



e)



f)



y \ x	2	3	4	5	6	7	8	9	10	11	12	P(Y=y)
1	1/36	0	0	0	0	0	0	0	0	0	0	1/36
2	0	2/36	1/36	0	0	0	0	0	0	0	0	3/36
3	0	0	2/36	2/36	1/36	0	0	0	0	0	0	5/36
4	0	0	0	2/36	2/36	2/36	1/36	0	0	0	0	7/36
5	0	0	0	0	2/36	2/36	2/36	2/36	1/36	0	0	9/36
6	0	0	0	0	0	2/36	2/36	2/36	2/36	2/36	1/36	11/36
P(X=x)	1/36	2/36	3/36	4/36	5/36	6/36	5/36	4/36	3/36	2/36	1/36	

$\frac{2}{36} = P(X=5 \wedge Y=3) \neq P(X=5) \cdot P(Y=3) = \frac{4}{36} \cdot \frac{5}{36}$

$\Rightarrow$ X und Y sind voneinander abhängige Zufallsgrößen!