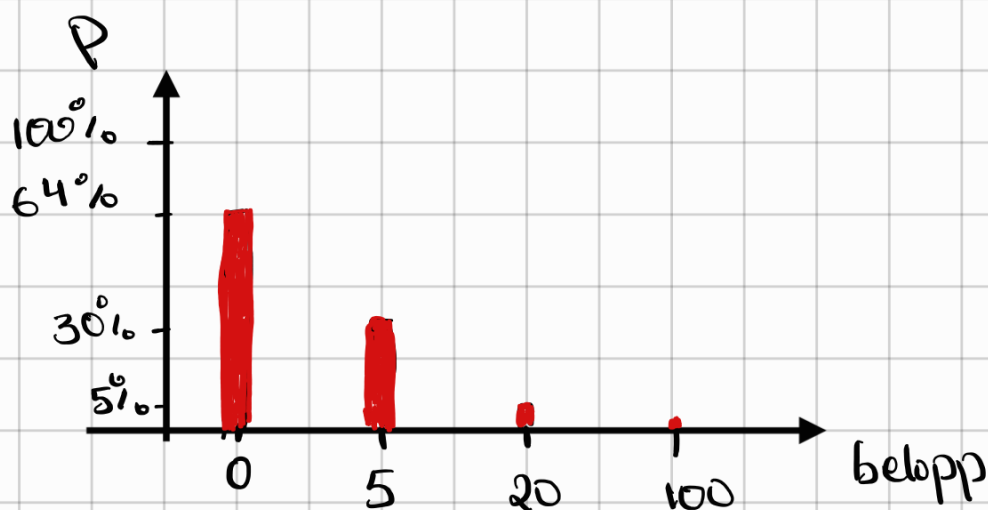


3.2

1	100 kr	0,01
5	20 kr	0,05
30	5 kr	0,3
64	0 kr	0,64
100 st		

a)  $X \in \{0, 5, 20, 100\}$



3.3

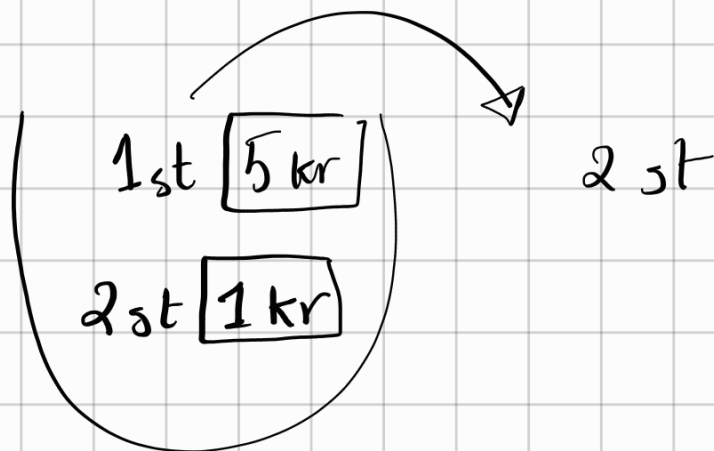
$\bar{X}$	3	4	7	8	9
$P_{\bar{X}}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{6}$	$\frac{1}{6}$	$a$

$$a = 1 - \left( \frac{1}{3} + \frac{1}{4} + \frac{1}{6} + \frac{1}{6} \right) = 1 - \left( \frac{1}{3} + \frac{1}{3} + \frac{1}{4} \right) = 1 - \frac{8+3}{12} = 1 - \frac{11}{12} = \frac{1}{12}$$

$$b) \quad F_{\bar{X}}(\bar{x}) = P_{\bar{X}}(\bar{x}) = 0$$

$$c) \quad \left. \begin{aligned} P_{\bar{X}}(4 \leq \bar{X} < 8) &\text{ oder } P(\bar{X} \geq 8) \\ &= \frac{1}{4} + \frac{1}{6} + \frac{1}{6} \\ &= \frac{1}{4} + \frac{1}{3} \\ &= \frac{7}{12} \end{aligned} \right\} \begin{aligned} &= \frac{1}{6} + \frac{1}{12} \\ &= \frac{2+1}{12} \\ &= \frac{1}{4} \end{aligned}$$

3.4



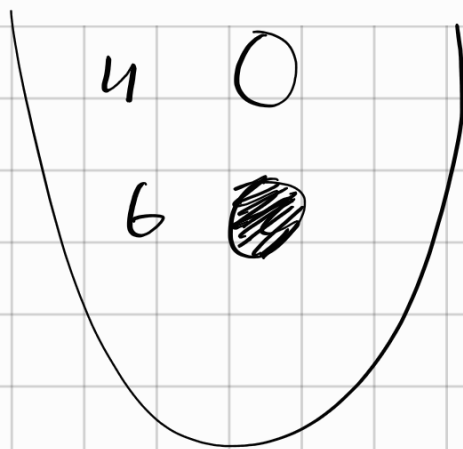
$$\bar{X} = \{ 2, 6 \}$$

$\begin{pmatrix} 1, 0 \\ 1, 5 \\ 5, 1 \end{pmatrix}$

$$P_{\bar{X}}(2) = \frac{1}{3}$$

$$P_{\bar{X}}(6) = \frac{2}{3}$$

3.5



$X$ : antal drag resulterar svart kula.

$$X \in \text{Ge}\left(\frac{3}{5}\right)$$

$$P_X(k) = (1-p)^k p$$

$$b) P_X(X \geq 3) = 1 - P_X(X < 3).$$

$$= 1 - \left( \frac{3}{5} + \left(1 - \frac{3}{5}\right) \frac{3}{5} + \left(1 - \frac{3}{5}\right)^2 \frac{3}{5} \right)$$

$$= 1 - \frac{3}{5} \left( 1 + \frac{2}{5} + \left(\frac{2}{5}\right)^2 \right)$$

$$= 1 - \frac{3}{5} \left( \frac{7}{5} + \frac{4}{25} \right)$$

$$= 1 - \frac{3}{5} \left( \frac{\quad}{25} \right)$$

3.5 a)  $Y \in \text{ffg}(P, K).$

$$P_Y(K) = \left(1 - \frac{2}{5}\right)^{K-1} \frac{2}{5}$$

$$P_Y(Y \geq 2) = \left(\frac{3}{5}\right)^1 \frac{2}{5} + \left(\frac{3}{5}\right)^2 \frac{2}{5} + \left(\frac{3}{5}\right)^3 \frac{2}{5} \\ = 0,4704$$

3.7 a) med återlägg:  $X \in \text{Bin}(3, \frac{2}{5})$

$n = 3$  utan återlägg:  $X \in \text{Hyp}(10, 3, \frac{2}{5})$

b)  $P_X(X \geq 2)$

med återlägg:  $P_X(X \geq 2) = \frac{3}{5}$

a) med återlägg:  $X \in \text{Hyp}(10, 3, \frac{2}{5})$

utan återlägg:  $P_X(k) = \frac{\binom{4}{k} \binom{6}{3-k}}{\binom{10}{3}}$

3.7

$$X = \{0, 1, 2, 3\}$$