$$P(X=k) = \underbrace{\binom{n}{k}}_{\text{Kombination}} \cdot \underbrace{p^{k}}_{\text{Treffer}} \cdot \underbrace{q^{n-k}}_{\text{Niete}}$$

$$P(X>k) = 1 - P(X \leq k)$$

1) $p = 0{,}05$; $q = 0{,}95$; $n = 10$; $k = 0$

$$\binom{10}{0} \cdot 0{,}05^{0} \cdot 0{,}95^{10}$$

0,5987

$p = 0{,}95$; $q = 0{,}05$; $n = 10$; $k = 10$

$$\binom{10}{10} \cdot 0{,}95^{10} \cdot 0{,}05^{0}$$

5) $p = 0{,}05$; $q = 0{,}95$; $n = 20$ $P(X \leq 1)$

$$P(X \leq 1) = P(X = 0) + P(X = 1)$$
$$= 0{,}7358$$

2) a) $p = 0{,}12$; $q = 0{,}88$; $n = 10$; $P(X \geq 1)$

$$P(X \geq 1) = 1 - P(X \leq 0) = 1 - P(X = 0)$$

$$P(X = 0) = \binom{10}{0} \cdot 0{,}12^0 \cdot 0{,}88^{10}$$

5) $n = 10$; $p = 0{,}1$ $P(X \leq k) > 0{,}5$