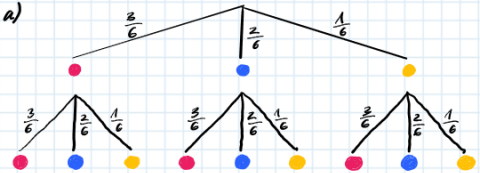
Mobil & whatsapp 0173-3047 206 • Internet franko-mathe.de/SRH • E-Mail info@franko-mathe.de • Dozent Rawe Franko • Bereich SRH Fachschulen Heidelberg

② mit Zurücklegen

a)



b) $P(bb) = \frac{2}{6} \cdot \frac{2}{6} = \frac{1}{9}$

c) $P(1\times b) = P(b\bar{b}) + P(\bar{b}b) = 2P(b\bar{b}) = 2 \cdot \frac{2}{6} \cdot \frac{4}{6} = \frac{16}{36} = \frac{4}{9}$

d) $P(\text{erste blau}) = \frac{2}{6} \cdot \frac{6}{6} = \frac{1}{3}$

e) $P(b\,\bar{b}) = \frac{2}{6} \cdot \frac{4}{6} = \frac{6}{36} = \frac{1}{6}$

f) $P(\text{mind. 1x blau}) = P(1\times b) + P(bb) = \frac{4}{9} + \frac{1}{9} = \frac{5}{9}$

g) $P(gg) = \frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$

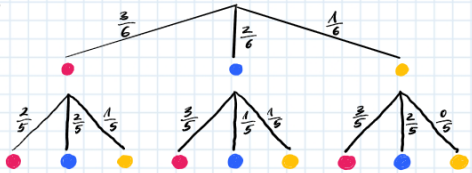
h) $P(\text{gleiche Farbe}) = P(rr) + P(bb) + P(gg) = \frac{3}{6} \cdot \frac{3}{6} + \frac{2}{6} \cdot \frac{2}{6} + \frac{1}{6} \cdot \frac{1}{6} = \frac{14}{36} = \frac{7}{18}$

i) $P(\text{untersch. Farben}) = 1 - \frac{7}{18} = \frac{11}{18}$

j) $P(\text{zweimal farbig}) = 1$

③ ohne Zurücklegen

a)



b) $P(bb) = \frac{2}{6} \cdot \frac{1}{5} = \frac{1}{15}$

c) $P(1\times b) = P(b\bar{b}) + P(\bar{b}b) = 2P(b\bar{b}) = 2 \cdot \frac{2}{6} \cdot \frac{4}{5} = \frac{16}{30} = \frac{8}{15}$

d) $P(\text{erste blau}) = \frac{2}{6} \cdot \frac{5}{5} = \frac{10}{30} = \frac{1}{3}$

e) $P(b\,\bar{b}) = \frac{2}{6} \cdot \frac{4}{5} = \frac{8}{30} = \frac{4}{15}$

f) $P(\text{mind. 1x blau}) = P(1\times b) + P(bb) = \frac{8}{15} + \frac{1}{15} = \frac{9}{15} = \frac{3}{5}$

g) $P(gg) = \frac{1}{6} \cdot \frac{0}{5} = 0$ („unmögliches Ereignis")

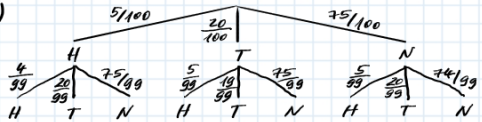
h) $P(\text{gleiche Farbe}) = P(rr) + P(bb) + P(gg) = \frac{3}{6} \cdot \frac{2}{5} + \frac{2}{6} \cdot \frac{1}{5} + \frac{1}{6} \cdot \frac{0}{5} = \frac{8}{30} = \frac{4}{15}$

i) $P(\text{untersch. Farben}) = 1 - \frac{4}{15} = \frac{11}{15}$

j) $P(\text{zweimal farbig}) = 1$

④

a)



b) $P(HH) = \frac{5}{100} \cdot \frac{4}{99} = 0{,}202\,\%$

c) $P(\text{2 Gewinne}) = P(HH) + 2P(HT) + P(TT)$

$= \frac{5}{100} \cdot \frac{4}{99} + 2 \cdot \frac{5}{100} \cdot \frac{20}{99} + \frac{20}{100} \cdot \frac{19}{99} = \frac{600}{9900} = 6{,}1\,\%$

d) $P(NN) = \frac{75}{100} \cdot \frac{74}{99} = 56{,}1\,\%$

e) $P(\text{mind. ein Gewinn}) = 1 - P(NN) = 43{,}9\,\%$

f) $E(X) = \frac{5}{100} \cdot 20\text{€} + \frac{20}{100} \cdot 2\text{€} - 2\text{€} = 1{,}40\text{€} - 2\text{€} = -0{,}60\text{€}$

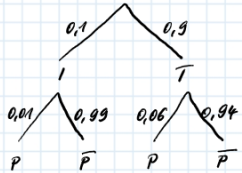
g) 1,40 €.

⑤

$P(I) = 0{,}1$

$P_I(P) = 0{,}01$

$P_{\bar{I}}(P) = 0{,}06$



$P(P) = P(I) \cdot P_I(P) + P(\bar{I}) \cdot P_{\bar{I}}(P) = 0{,}1 \cdot 0{,}01 + 0{,}9 \cdot 0{,}06 = 0{,}001 + 0{,}054 = 0{,}055$