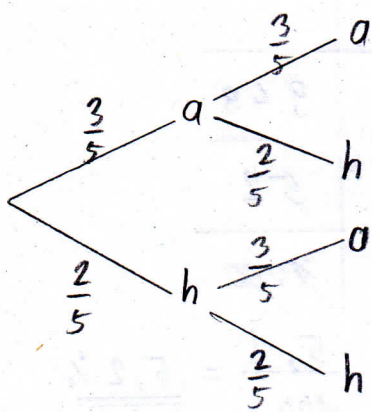


Nr. 3)

a)



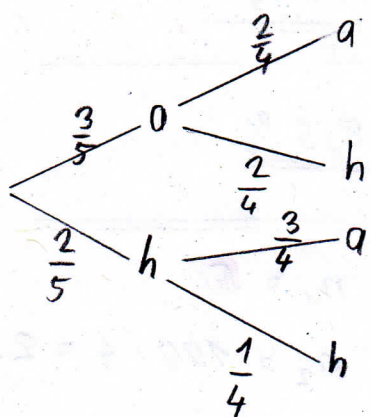
$$P(E) = \frac{3}{5} \cdot \frac{3}{5} + \frac{3}{5} \cdot \frac{2}{5} = \frac{15}{25} = \frac{3}{5}$$

$$P(F) = \frac{3}{5} \cdot \frac{2}{5} + \frac{2}{5} \cdot \frac{2}{5} = \frac{10}{25} = \frac{2}{5}$$

$$\underline{\underline{P(E \cap F) = \frac{3}{5} \cdot \frac{2}{5} = \frac{6}{25} = P(E) \cdot P(F)}}$$

$\Rightarrow E$ und F sind unabhängig.

b)



$$P(E) = \frac{3}{5} \cdot \frac{2}{4} + \frac{3}{5} \cdot \frac{2}{4} = \frac{12}{20} = \frac{3}{5}$$

$$P(F) = \frac{3}{5} \cdot \frac{2}{4} + \frac{2}{5} \cdot \frac{1}{4} = \frac{8}{20} = \frac{2}{5}$$

$$P(E \cap F) = \frac{3}{5} \cdot \frac{2}{4} = \frac{3}{10} \neq P(E) \cdot P(F) = \frac{3}{5} \cdot \frac{2}{5}$$

$\Rightarrow E$ und F sind nicht unabhängig

$$\underline{\underline{P_E(F) = \frac{P(E \cap F)}{P(E)} = \frac{\frac{3}{5} \cdot \frac{2}{4}}{\frac{3}{5}} = \frac{6}{20} = \frac{6^2}{20 \cdot 3} \cdot \frac{1}{1} = \frac{2}{4} = \frac{1}{2}}}}$$

Nr. 4) a) $P(E) = \frac{3}{5} \cdot \frac{3}{5} + \frac{3}{5} \cdot \frac{2}{5} = \frac{15}{25} = \frac{3}{5}$; $P(F) = \frac{3}{5} \cdot \frac{3}{5} + \frac{2}{5} \cdot \frac{3}{5} = \frac{15}{25} = \frac{3}{5}$

$$P(E \cap F) = \frac{3}{5} \cdot \frac{3}{5} = P(E) \cdot P(F) \Rightarrow \text{unabhängig}$$

b) $P(E) = \frac{3}{5}$; $P(F) = \frac{3}{5} \cdot \frac{2}{5} + \frac{2}{5} \cdot \frac{3}{5} = \frac{12}{25}$

$$P(E \cap F) = \frac{3}{5} \cdot \frac{2}{5} = \frac{6}{25} \neq \frac{3}{5} \cdot \frac{12}{25} = \frac{36}{125} = P(E) \cdot P(F) \Rightarrow \text{nicht unabhängig}$$

c) zu a)

$$P_E(F) = \frac{\frac{9}{25}}{\frac{3}{5}} = \frac{9}{25} \cdot \frac{5}{3} = \frac{3}{5}; P_F(E) = \frac{\frac{9}{25}}{\frac{3}{5}} = \frac{3}{5}$$

zu b) $P_E(F) = \frac{\frac{6}{25}}{\frac{3}{5}} = \frac{6}{25} \cdot \frac{5}{3} = \frac{2}{5}$; $P_F(E) = \frac{\frac{6}{25}}{\frac{12}{25}} = \frac{6}{25} \cdot \frac{25}{12} = \frac{1}{2}$