

Het vaasmodel - antwoorden

Opgave 1

$$P(\text{geen witte ballen}) = \frac{6}{14} \times \frac{5}{13} \times \frac{4}{12} = \frac{5}{91}$$

$$P(1 \text{ witte bal}) = 3 \cdot \frac{8}{14} \times \frac{6}{13} \times \frac{5}{12} = \frac{30}{91}$$

$$P(2 \text{ witte ballen}) = 3 \cdot \frac{8}{14} \times \frac{7}{13} \times \frac{6}{12} = \frac{6}{13}$$

$$P(3 \text{ witte ballen}) = \frac{8}{14} \times \frac{7}{13} \times \frac{6}{12} = \frac{2}{13}$$

Opgave 2

$$P(\text{geen witte ballen}) = \left(\frac{6}{14}\right)^3 = \frac{27}{343}$$

$$P(1 \text{ witte bal}) = 3 \cdot \frac{8}{14} \times \left(\frac{6}{14}\right)^2 = \frac{108}{343}$$

$$P(2 \text{ witte ballen}) = 3 \cdot \left(\frac{8}{14}\right)^2 \times \frac{6}{14} = \frac{144}{343}$$

$$P(3 \text{ witte ballen}) = \left(\frac{8}{14}\right)^3 = \frac{64}{343}$$

Opgave 3

$$P(\text{wit, blauw, rood}) = \frac{8}{14} \times \frac{4}{13} \times \frac{2}{12} = \frac{8}{273}$$

$$P(\text{drie kleuren}) = 6 \times \frac{8}{273} \approx 0,176$$

Opgave 4

$$P(\text{wit, blauw, rood}) = \frac{8}{14} \times \frac{4}{14} \times \frac{2}{14} = \frac{8}{343}$$

$$P(\text{drie kleuren}) = 6 \times \frac{8}{343} \approx 0,140$$

Opgave 5

$$P(\text{minstens één goed}) =$$

$$1 - P(\text{geen getal goed}) =$$

$$1 - \frac{35}{41} \times \frac{34}{40} \times \frac{33}{39} \times \frac{32}{38} \times \frac{31}{37} \times \frac{30}{36} \approx$$

$$1 - 0,361 = 0,639$$