

4.6 Diagnostische toets

Opgave 1:

<p>a. $\frac{6}{48}$</p> <p>b. $\frac{3}{48}$</p> <p>c. $\frac{10}{48}$</p> <p>d. $\frac{6}{48}$</p>	<table style="border-collapse: collapse; margin-bottom: 10px;"> <tr><td style="border-right: 1px solid black; padding: 5px;">8</td><td style="padding: 5px;"></td><td style="padding: 5px;"></td><td style="padding: 5px;"></td><td style="padding: 5px;"></td><td style="padding: 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">7</td><td style="padding: 5px;">8</td><td style="padding: 5px;"></td><td style="padding: 5px;"></td><td style="padding: 5px;"></td><td style="padding: 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">6</td><td style="padding: 5px;"></td><td style="padding: 5px;">8</td><td style="padding: 5px;"></td><td style="padding: 5px;"></td><td style="padding: 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">5</td><td style="padding: 5px;"></td><td style="padding: 5px;"></td><td style="padding: 5px;">8</td><td style="padding: 5px;"></td><td style="padding: 5px;"></td></tr> <tr><td style="border-right: 1px solid black; 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Opgave 2:

Totaal $4^4 = 256$ mogelijkheden

a. 1-1-4-4: $\frac{4!}{2! \cdot 2!} = 6$ manieren

1-2-2-4: $\frac{4!}{2!} = 12$ manieren

2-2-2-2: 1 manier

dus $\frac{19}{256}$

b. som = 14: 4-4-4-2: 4 manieren

4-4-3-3: $\frac{4!}{2! \cdot 2!} = 6$ manieren

som = 15: 4-4-4-3: 4 manieren

som = 16: 4-4-4-4: 1 manier

dus $\frac{15}{256}$

Opgave 3:

a. $\frac{159 + 33}{215} = 0,983$

b. $\frac{12}{215} = 0,056$

c. $\frac{15 + 5}{215} = 0,093$

Opgave 4:

a. $\frac{15 + 59}{80} = 0,925$

b. $\frac{6}{33} = 0,182$

c. $\frac{59 + 49 + 6 + 12}{80 + 66} = \frac{126}{146} = 0,863$

d. $\frac{49 + 51 + 12 + 15}{215} = 0,591$

Opgave 5:

	A	B	C	
wel op post	0,357	0,20	0,2706	0,8276
niet op post	0,063	0,05	0,0594	0,1724
	0,42	0,25	0,33	1

a. 0,1724

b. $\frac{0,063}{0,1724} = 0,365$

c. 0,357

d. $P(\text{er is geen bewaking} | C \text{ heeft dienst}) = \frac{0,0594}{0,33} = 0,18$

$P(\text{er is geen bewaking}) = 0,1724$

De kansen zijn niet gelijk, dus de gebeurtenissen zijn afhankelijk.

Opgave 6:

a. $\frac{\binom{5}{2} \binom{7}{2} \binom{9}{2}}{\binom{21}{6}} = 0,1393$

b. $\frac{\binom{12}{6}}{\binom{21}{6}} = 0,0170$

c. $\frac{\binom{5}{2} \binom{16}{4}}{\binom{21}{6}} = 0,3354$

Opgave 7:

a. $\frac{\binom{33}{4}}{\binom{40}{4}} = 0,4478$

b. $\frac{\binom{7}{2} \binom{33}{2}}{\binom{40}{4}} = 0,1213$

c. $\frac{\binom{1}{1} \binom{6}{1} \binom{33}{2}}{\binom{40}{4}} = 0,0347$

Opgave 8:

$\frac{\binom{16}{2} \binom{144}{18}}{\binom{160}{20}} = 0,3046$

Opgave 9:

a. $P(\text{minstens 1 rood}) = 1 - P(\text{geen rood}) = 1 - \frac{\binom{8}{4}}{\binom{14}{4}} = 0,930$

b. $\frac{\binom{9}{4} + \binom{9}{3} \cdot \binom{5}{1}}{\binom{14}{4}} = 0,545$

c. $\frac{\binom{8}{4}}{\binom{14}{4}} = 0,070$

d. $P(\text{minder dan 3 zwart}) = 1 - P(3 \text{ zwart}) = 1 - \frac{\binom{3}{3} \cdot \binom{11}{1}}{\binom{14}{4}} = 0,989$

Opgave 10:

a. $\frac{\binom{115}{6} + \binom{115}{5} \cdot \binom{5}{1}}{\binom{120}{6}} = 0,980$

b. 1 keer 100 of 4 keer 25

$$\frac{\binom{1}{1} \cdot \binom{115}{5} + \binom{4}{4} \cdot \binom{115}{2}}{\binom{120}{6}} = 0,042$$

c. minimaal 30 euro aan prijzengeld winnen

$$P(\text{geen verlies}) = 1 - P(0 \text{ of } 25 \text{ euro}) = 1 - \frac{\binom{115}{6} + \binom{115}{5} \cdot \binom{4}{1}}{\binom{120}{6}} = 0,062$$

Opgave 11:

a. $\frac{\binom{10}{5} \binom{19}{2} + \binom{10}{6} \binom{19}{1} + \binom{10}{7}}{\binom{29}{7}} = 0,0302$

b. $\frac{\binom{14}{7} + \binom{14}{6} \cdot \binom{15}{1} + \binom{14}{5} \cdot \binom{15}{2}}{\binom{29}{7}} = 0,1657$

c. $1 - P(0 \text{ of } 1 \text{ cijfer } 5 \text{ of lager}) = 1 - \frac{\binom{21}{7} + \binom{21}{6} \cdot \binom{8}{1}}{\binom{29}{7}} = 0,6474$