

Gemengde opgaven hoofdstuk 2.

Opgave 14:

6						
5						
4	x					
3	x	x				
2	x	x	x			
1	x	x	x	x		
	1	2	3	4	5	6

opgave a

6				x		
5			x			
4		x				x
3	x				x	
2				x		
1			x			
	1	2	3	4	5	6

opgave b

6		x		x		x
5				x		
4	x	X	x	x	x	x
3				x		
2		x		x		x
1				x		
	1	2	3	4	5	6

opgave c

- a. $\frac{10}{36}$
 b. $\frac{8}{36}$
 c. $\frac{15}{36}$

Opgave 15:

- a. $\frac{71+43}{260} = 0,438$
 b. $\frac{16+12}{52} = 0,538$
 c. $\frac{16+12}{71+43} = 0,246$
 d. $\frac{7}{260} = 0,027$

Opgave 16:

- a. $\frac{9}{30} \cdot 100\% = 30\%$
 b. $\frac{12}{100} \cdot 100\% = 12\%$
 c. $P(am | B) = \frac{12}{30} = 0,4$
 $P(am) = \frac{45}{100} = 0,45$

	Am	s/f	ac	cu	
A	24	8	4	4	40
B	12	9	6	3	30
C	9	9	6	6	30
	45	26	16	13	100

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

Opgave 17:

- a. $\frac{230}{1600} = 0,144$
 b. $\frac{613}{1600} = 0,383$
 c. $\frac{140}{613} = 0,228$
 d. $\frac{140}{576} = 0,243$

	lezen	computer	tv	
sport	321	115	140	576
geen sport	321	230	473	1024
	642	345	613	1600

- e. $\frac{\binom{12}{5} \binom{18}{5}}{\binom{30}{10}}$
 f. $\frac{\binom{8}{3} \binom{22}{7} + \binom{8}{4} \binom{22}{6}}{\binom{30}{10}} = 0,492$
 g. $\frac{\binom{13}{4} \binom{8}{2} \binom{9}{4}}{\binom{30}{10}} = 0,084$

Opgave 18:

$$a. \frac{\binom{56}{4}}{\binom{76}{4}} = 0,286$$

$$b. \frac{\binom{20}{2} \binom{56}{2}}{\binom{76}{4}} = 0,228$$

$$c. \frac{\binom{20}{3} \binom{56}{1} + \binom{36}{3} \binom{40}{1} + \binom{12}{3} \binom{64}{1} + \binom{8}{3} \binom{68}{1}}{\binom{76}{4}} = 0,286$$

Opgave 19:

$$a. \frac{\binom{55}{5}}{\binom{65}{5}} = 0,421$$

$$b. \frac{\binom{6}{1} \binom{55}{4}}{\binom{65}{5}} = 0,248$$

$$c. \frac{\binom{3}{1} \binom{6}{1} \binom{55}{3}}{\binom{65}{5}} = 0,057$$

$$d. \frac{\binom{10}{2} \binom{55}{3}}{\binom{65}{5}} = 0,143$$

Opgave 20:

$$a. \frac{\binom{21}{2} \binom{99}{10} + \binom{21}{1} \binom{99}{11} + \binom{99}{12}}{\binom{120}{12}} = 0,649$$

b. dit is dezelfde vraag als opgave a, dus 0,649

$$c. \frac{\binom{32}{3} \binom{88}{9}}{\binom{120}{12}} = 0,269$$

Opgave 21:

a. kaaa of akaa

$$\frac{3}{15} \cdot \frac{2}{15} \cdot \frac{2}{15} \cdot \frac{5}{15} + \frac{5}{15} \cdot \frac{2}{15} \cdot \frac{2}{15} \cdot \frac{5}{15} = \frac{160}{50625} = 0,00316$$

b. 4 appels of 4 peren of 4 bananen of 4 kiwi's

$$\frac{5}{15} \cdot \frac{2}{15} \cdot \frac{2}{15} \cdot \frac{5}{15} + \frac{3}{15} \cdot \frac{4}{15} \cdot \frac{4}{15} \cdot \frac{3}{15} + \frac{1}{15} \cdot \frac{5}{15} \cdot \frac{5}{15} \cdot \frac{1}{15} + \frac{3}{15} \cdot \frac{2}{15} \cdot \frac{4}{15} \cdot \frac{6}{15} = \frac{413}{50625} = 0,00816$$

c. $\frac{1}{15} \cdot \frac{10}{15} \cdot \frac{10}{15} \cdot \frac{14}{15} + \frac{14}{15} \cdot \frac{5}{15} \cdot \frac{10}{15} \cdot \frac{14}{15} + \frac{14}{15} \cdot \frac{10}{15} \cdot \frac{5}{15} \cdot \frac{14}{15} + \frac{14}{15} \cdot \frac{10}{15} \cdot \frac{10}{15} \cdot \frac{1}{15} = \frac{22400}{50625} = 0,44247$

d. $\frac{12}{15} \cdot \frac{13}{15} \cdot \frac{11}{15} \cdot \frac{9}{15} = \frac{15444}{50625} = 0,30507$

Opgave 22:

$$a. \frac{5}{9} \cdot \frac{7}{11} \cdot \frac{9}{13} = \frac{315}{1287} = 0,245$$

b. rrw of rwr of wrw of rrr

$$\frac{5}{9} \cdot \frac{7}{11} \cdot \frac{4}{13} + \frac{5}{9} \cdot \frac{4}{11} \cdot \frac{7}{13} + \frac{4}{9} \cdot \frac{5}{11} \cdot \frac{7}{13} + \frac{5}{9} \cdot \frac{7}{11} \cdot \frac{9}{13} = \frac{735}{1287} = 0,571$$

Opgave 23:

a. $\binom{49}{3} = 18424$

b. $2^{49} = 5,6 \cdot 10^{14} > 10^{11}$

c. $1 - P(\text{geen leesfouten}) = 1 - 0,99995^{64} = 0,0032$