Exercise 3

Donnerstag, 27. April 2023 16:12

a) $P(W_{blue} + W_{red} = 9) = \frac{4}{36} = \frac{1}{9}$

There are $6 \times 6 = 36$ equally probable combinations of which 4 have a sum of 9.

blue	red	sum
4	5	9
5	4	9
6	3	9
3	6	9

b) The only combination for $P(W_{blue} + W_{red} = 12)$ is 6 on both dices. For every lower sum there is one event added.

$$P(W_{blue} + W_{red} \geq 9) = \frac{1}{36} + \frac{2}{36} + \frac{3}{36} + \frac{4}{36} = \frac{10}{36}$$

sum equals to: ↑12 ↑11 ↑10 ↑9

c)

blue	red
4	5
5	4

$P(4 \text{ and } 5) = \frac{2}{36} = \frac{1}{18}$

d) $P(W_{blue} = 5 \wedge W_{red} = 4) = \frac{1}{36}$

e) $P(W_{blue} + W_{red} = 9 \mid W_{red} = 4) \quad P(W_{blue} = 5) = \frac{1}{6}$

f) $P(W_{blue} = 5 \vee W_{blu} = 6) = \frac{1}{6} + \frac{1}{6} = \frac{1}{3}$

g) same situation as in e)