

# Lösungen / Statistik 1/05

Remove["Global`\*"]

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**1.**

<http://rowicus.ch/Wir/ProblemsSolutBachelor/LM2Sta05L1.pdf>

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**2.**

A, B, C unabhängig! / A, B C indépendants

$p_A = 0.05$ ;  $p_B = 0.05$ ;  $p_C = 0.10$ ;  
 $p_{A \text{ and } B} = p_A p_B$ ;  $p_{A \text{ and } C} = p_A p_C$ ;  $p_{B \text{ and } C} = p_B p_C$ ;  $p_{A \text{ and } B \text{ and } C} = p_A p_B p_C$ ;  
 $p_{A \text{ or } B \text{ or } C} = p_A + p_B + p_C - p_{A \text{ and } B} - p_{A \text{ and } C} - p_{B \text{ and } C} + p_{A \text{ and } B \text{ and } C}$

0.18775

$p_{OK} = 1 - p_{A \text{ or } B \text{ or } C}$

0.81225

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**3.**

Einmal würfeln / Jouer une fois avec un dé

$p_{5 \text{ or } 6} = 1/6 + 1/6$ ;

Dreimal würfeln / Jouer trois fois avec un dé

$\text{tot} = 6^3$

216

$OK1 \text{ or } OK2 \text{ or } OK3 = (1+1) * 5 * 5 + 5 * (1+1) * 5 + 5 * 5 * (1+1)$

150

$p_{\text{ExactONE5or6}} = OK1 \text{ or } OK2 \text{ or } OK3 / \text{tot}$

$\frac{25}{36}$

$N[p_{\text{ExactONE5or6}}]$

0.694444

**4.**

```
defect = 10 * 90 / 100 // N
```

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9.
```

```
tot = 90; defect = 10 * 90 / 100;
pDefect = 0.1; pOK = 1 - pDefect
```

```
0.9
```

```
OK = tot - defect
```

```
81
```

```
pOK1 = OK / tot
```

$$\frac{9}{10}$$

```
pOK2 = (OK - 1) / (tot - 1)
```

$$\frac{80}{89}$$

```
pOK3 = (OK - 2) / (tot - 2); pOK4 = (OK - 3) / (tot - 3); pOK5 = (OK - 4) / (tot - 4);
pOK = pOK1 pOK2 pOK3 pOK4 pOK5
```

$$\frac{64701}{110983}$$

```
pOK // N
```

```
0.582981
```

**5.****a**

```
pOK = 11 / 12 * 10 / 11
```

$$\frac{5}{6}$$

```
pNotOK = 1 - pOK
```

$$\frac{1}{6}$$

```
pOK1andOK2andOK3 = pOK * pOK * pOK
```

$$\frac{125}{216}$$

```
N[pOK1andOK2andOK3]
```

```
0.578704
```

**b**

$$p_{\text{OK1andNotOK2andOK3}} = p_{\text{OK}} * p_{\text{NotOK}} * p_{\text{OK}}$$

$$\frac{25}{216}$$

$$N[p_{\text{OK1andNotOK2andOK3}}]$$

$$0.115741$$

**c**

$$p_{\text{OK1andOK2andEvOK3}} = p_{\text{OK1andOK2andNotOK3}} \text{ OR } p_{\text{OK1andOK2andOK3}}$$

$$p_{\text{OK1andOK2andEvOK3}} = p_{\text{OK}} * p_{\text{OK}} * p_{\text{NotOK}} + p_{\text{OK}} * p_{\text{OK}} * p_{\text{OK}}$$

$$\frac{25}{36}$$

$$N[\%]$$

$$0.694444$$