

# Lösungen Testat STOC SW03

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## 1 Aufgabe 1

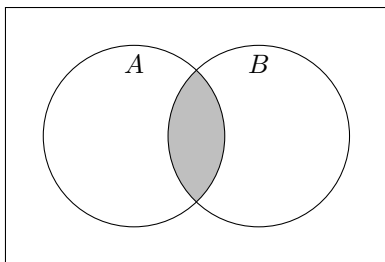
1.1 a

1.2 b

## 2 Aufgabe 2

2.1 a

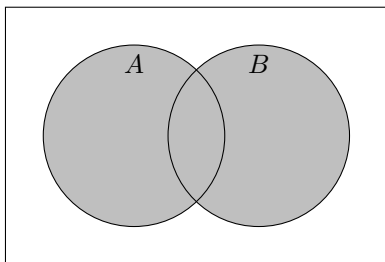
$$P(A \cap B) = P(A) \cdot P(B) = \frac{3}{4} \cdot \frac{2}{3} = \frac{1}{2}$$



```
1 \begin{venndiagram2sets}
2   \fill A Cap B
3 \end{venndiagram2sets}
```

2.2 b

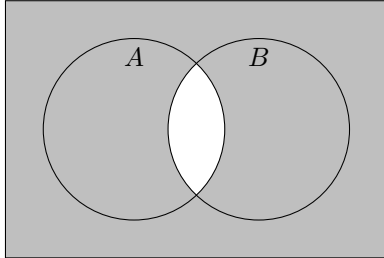
$$P(A \cup B) = P(A) + P(B) - P(A \cap B) = \frac{3}{4} + \frac{2}{3} - \frac{2}{4} = \frac{11}{12}$$



```
1 \begin{venndiagram2sets}
2   \fill A \fill B
3 \end{venndiagram2sets}
```

### 2.3 c

$$P(\overline{A \cap B}) = P(\Omega) - P(A \cap B) = 1 - P(A \cap B) = 1 - \frac{1}{2} = \frac{1}{2}$$



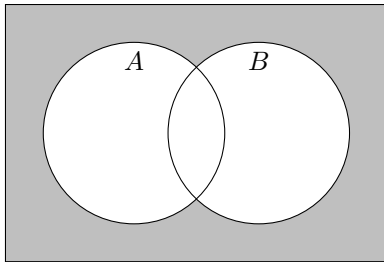
```

1 \begin{venndiagram2sets}
2   \fillNotAorB \fillANotB \fillBNotA
3 \end{venndiagram2sets}

```

### 2.4 d

$$P(\overline{A \cup B}) = P(\Omega) - P(A \cup B) = 1 - P(A \cup B) = 1 - \frac{11}{12} = \frac{1}{12}$$



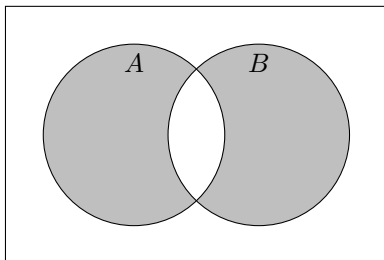
```

1 \begin{venndiagram2sets}
2   \fillNotAorB
3 \end{venndiagram2sets}

```

### 2.5 e

$$P(A \cup B) = P(A) + P(B) - 2 \cdot P(A \cap B) = \frac{3}{4} + \frac{2}{3} - 2 \cdot \frac{2}{4} = \frac{5}{12}$$



```

1 \begin{venndiagram2sets}
2   \fillANotB \fillBNotA
3 \end{venndiagram2sets}

```

### 3 Aufgabe 3

3.1 a

3.2 b

### 4 Aufgabe 4

4.1 a

$\{11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 31, 32, 33, 34, 35, 36, 41, 42, 43, 44, 45, 46, 51, 52, 53, 54, 55, 56, 61, 62, 63, 64, 65, 66\}$

4.2 b

$$\frac{1}{36}$$

4.3 c

$$E_1 = \{16, 25, 34, 43, 52, 61\}$$

$$P(E_1) = \frac{6}{36} = \frac{1}{6}$$

4.4 d

$$E_2 = \{11, 12, 21\}$$

$$P(E_2) = \frac{3}{36} = \frac{1}{12}$$

4.5 e

$$E_3 = \{11, 13, 15, 31, 33, 35, 51, 53, 55\}$$

$$P(E_3) = \frac{9}{36} = \frac{1}{4}$$

4.6 f

$$E_2 \cup E_3 = \{11, 12, 13, 15, 21, 31, 33, 35, 51, 53, 55\}$$

$$P(E_3) = \frac{11}{36}$$

## **5 Aufgabe 5**

**5.1 a**

**5.2 b**

**5.3 c**

## **6 Aufgabe 6**

**6.1 a**

**6.2 b**

**6.3 c**