

5. ÜbungsblattGeometrische Wahrscheinlichkeiten, Verteilungsfunktion
Ergebnisse

1. $\frac{23}{200}$

2. $\frac{1}{2}$

3. $\frac{2}{3}$

4. $\frac{1}{2}$

5. 0,4218

6. 0,5858

7. $\frac{5}{9}$

8. 0,8121, nicht stetig

9.

$$F_Y(t) = \begin{cases} 0, & \text{falls } t < 0, \\ \frac{1}{6}, & \text{falls } 0 \leq t < 1, \\ \frac{1}{2}, & \text{falls } 1 \leq t < 4, \\ \frac{5}{6}, & \text{falls } 4 \leq t < 9, \\ 1, & \text{falls } t \geq 9 \end{cases}$$

10. a) ja b) ja c) nein d) ja

11.

a) $F_X(t) = \begin{cases} 0, & \text{falls } t < 0, \\ 2t - t^2, & \text{falls } 0 \leq t < 1, \\ 1, & \text{falls } 1 \leq t. \end{cases}$

b) $\mathbb{P}(0,25 < X \leq 0,5) = \frac{5}{16}$

12.

$$F_X(t) = \begin{cases} 0, & \text{falls } t < 0, \\ 2t - t^2, & \text{falls } 0 \leq t < 1, \\ 1, & \text{falls } 1 \leq t. \end{cases}$$

13. $\mathbb{P}(Y > 0) = \frac{1}{2}$

$$F_Y(t) = \begin{cases} 0, & \text{falls } t < -2, \\ \frac{(2+t)^2}{8}, & \text{falls } -2 \leq t < 0, \\ 1 - \frac{(2-t)^2}{8}, & \text{falls } 0 \leq t < 2, \\ 1, & \text{falls } t \geq 2. \end{cases}$$

$$14. F_X(t) = \begin{cases} 0, & \text{falls } t < 1, \\ 1 + 2\sqrt{t-1} - t, & \text{falls } 1 \leq t < 2, \\ 1, & \text{falls } 2 \leq t \end{cases}$$

$$*15. F_Y(t) = \begin{cases} 0, & \text{falls } t < 0 \\ 3t^2 - 2t^3, & \text{falls } 0 \leq t < 1 \\ 1, & \text{falls } 1 \leq t \end{cases}$$