

**Ex 1 p 182**

$X$  est une variable aléatoire à densité sur  $[3; 10]$ . On donne  $P(X < 5) = 0,6$ .

- a)  $P(X = 5) = 0$
- b)  $P(X \leq 5) = 0,6$
- c)  $P(X > 5) = 1 - P(X \leq 5) = 1 - 0,6 = 0,4$
- d)  $P(5 < X < 10) = P(X > 5) = 0,4$

**Ex 2 p 182**

$X$  est une variable aléatoire à densité sur  $[2; 11]$ . On donne  $P(X \leq 4) = 0,2$  et  $P(X > 7) = 0,5$ .

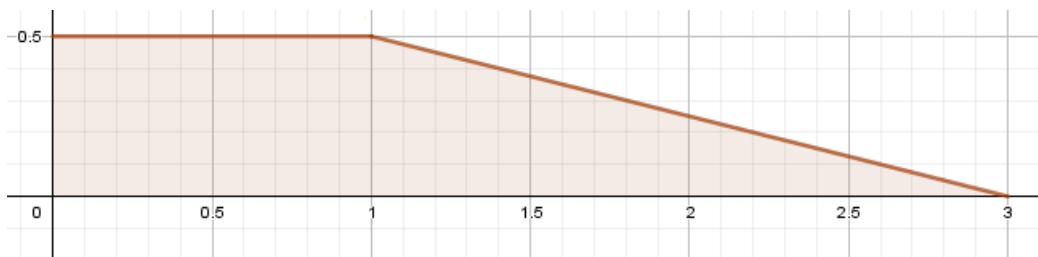
- a)  $P(X > 4) = 1 - P(X \leq 4) = 1 - 0,2 = 0,8$
- b)  $P(X > 11) = 0$
- c)  $P(X > 7) = 1 - P(X \leq 7) = 1 - 0,5 = 0,5$
- d)  $P(4 < X < 7) = P(X < 7) - P(X < 4) = 0,5 - 0,2 = 0,3$

**Ex 4 p 182**

On donne :  $\int_{-1}^1 f(x) dx = 0,40$  et  $\int_1^2 f(x) dx = 0,25$

- a)  $P(-1 \leq X \leq 1) = \int_{-1}^1 f(x) dx = 0,40$
- b)  $P(X > 1) = \int_1^2 f(x) dx = 0,25$
- c)  $P(-1 \leq X \leq 2) = \int_{-1}^2 f(x) dx = \int_{-1}^1 f(x) dx + \int_1^2 f(x) dx = 0,40 + 0,25 = 0,65$
- d)  $P(X \leq 1) = 1 - P(X > 1) = 1 - 0,25 = 0,75$
- e) On remarque que  $P(-1 \leq X \leq 2) = P(X \geq -1) = 0,65$   
 $P(X \leq -1) = 1 - P(X > -1) = 1 - 0,65 = 0,35$
- f)  $P(-1 \leq X \leq 2) = P(X \geq -1) = P(X > -1) = 0,65$

**Ex 5 p 182**



- a)  $P(X > 0) = 1$
- b)  $P(0 < X < 1) = 0,5$
- c)  $P(1 \leq X \leq 3) = 1 - P(0 < X < 1) = 1 - 0,5 = 0,5$
- d)  $P(X < 0,6) = 0,6 \times 0,5 = 0,3$
- e)  $P(X > 0,5) = P(0,5 \leq X \leq 1) + P(1 \leq X \leq 3) = 0,25 + 0,5 = 0,75$