Correction des exercices 7,8,9 p 182

Ex 7 p182

$P(X < 0,2) = P(0 < X < 0,2) = \dfrac{0,2-0}{1-0} = 0,2$

$P(X > \dfrac{3}{7}) = 1 - P(X < \dfrac{3}{7}) = 1 - \dfrac{\frac{3}{7}}{1-0} = 1 - \dfrac{3}{7} = \dfrac{4}{7}$

Ex 8 p182

1. Soit f la fonction de densité de probabilité de la loi X est définie sur $[4;14]$ par :

$$f(x) = \frac{1}{14-4} = \frac{1}{10}$$

2. $P(X < 7) = \dfrac{7-4}{14-4} = \dfrac{3}{10} = 0,3$

   $P(X \leqslant 10) = \dfrac{10-4}{14-4} = \dfrac{6}{10} = 0,6$

   $P(7 \leqslant X \leqslant 10) = P(X \leqslant 10) - P(X \leqslant 7) = 0,6 - 0,3 = 0,3$

3. $E(x) = \dfrac{4+14}{2} = 9$

Ex 9 p182

1. $P(A) = P(X > 5) = 1 - P(X < 5) = 1 - \dfrac{5-2}{20-2} = 1 - \dfrac{3}{18} = \dfrac{15}{18} = \dfrac{5}{6}$

   $P(A \cap B) = P(5 < X < 12) = P(X < 12) - P(X < 5) = \dfrac{12-2}{20-2} - \dfrac{5-2}{20-2} = \dfrac{10}{18} - \dfrac{3}{18} = \dfrac{7}{18}$

2. $P_A(B) = P_{X>5}(X < 12) = \dfrac{P(A \cap B)}{P(A)} = \dfrac{P(5 < X < 12)}{P(X > 5)} = \dfrac{\frac{7}{18}}{\frac{15}{18}} = \dfrac{7}{18} \times \dfrac{18}{15} = \dfrac{7}{\cancel{18}} \times \dfrac{\cancel{18}}{15} = \dfrac{7}{15}$