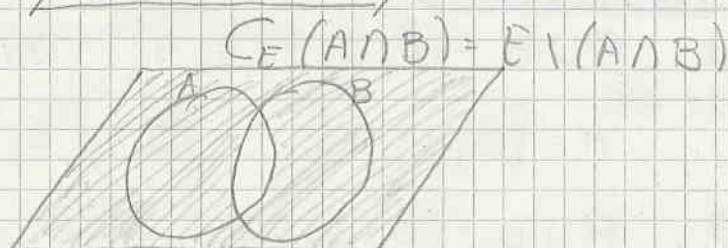
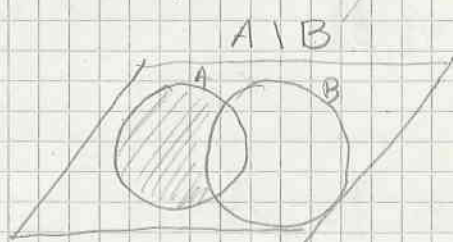
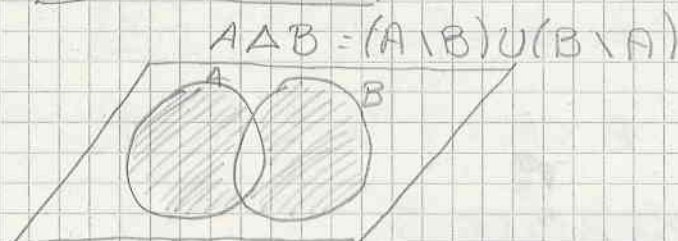
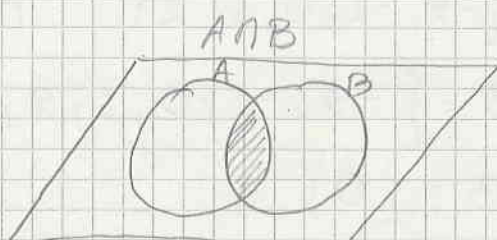
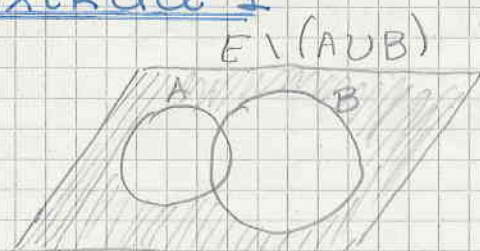


LDPR : Niveau 1 : Ensembles

EXERCICE 1



EXERCICE 2

$$A = \{x \in \mathbb{R} \mid x = 2n-1, n \in \mathbb{N}^*, n \leq 5\} = \{1; 3; 5; 7; 9\}$$

$$B = \{x \in \mathbb{R} \mid x = n^2+1, n \in \mathbb{N}, n < 5\} = \{1; 5; 10; 17\}$$

$$C = \{x \in \mathbb{Z} \mid 3x+4=2\} = \emptyset$$

$$3x+4=2 \Leftrightarrow 3x=-2 \Leftrightarrow x=-\frac{2}{3} \notin \mathbb{Z}$$

$$D = \{x \in \mathbb{R} \mid x^2-1=0\} = \{-1; 1\}$$

$$x^2=1 \Leftrightarrow x=\pm 1$$

$$E = \{x \in \mathbb{Z} \mid x^2+1=0\} = \emptyset \text{ car } x^2=-1 \text{ impossible}$$

EXERCICE 3

$$A = \{-1; -2; 0; 1; 2; 3\} = \{x \in \mathbb{Z} \mid -2 \leq x \leq 3\}$$

$$B = \left\{\frac{1}{1}; \frac{1}{2}; \frac{1}{4}; \frac{1}{8}; \frac{1}{16}; \frac{1}{32}\right\} = \left\{x \in \mathbb{Q} \mid x = \frac{1}{2^n}, n \in \mathbb{N}; n \leq 5\right\}$$

$$C = \{0; 1; 4; 9; 16; 25; \dots; 100\} = \{x \in \mathbb{N} \mid x = n^2, n \in \mathbb{N}; x = n^2; n \leq 10\}$$

$$D = \{1; 3; 5; 7; 9; 11\} = \{x \in \mathbb{Z} \mid x = 2n-1, n \in \mathbb{N}^*; n \leq 6\}$$

EXERCICE 4

$$A = \{x \in \mathbb{Z} \mid -2 \leq x \leq 2\} \quad B = \{x \in \mathbb{N} \mid x = 3k, k \in \mathbb{N}, 0 \leq k \leq 4\}$$

$$1. A = \{-2; -1; 0; 1; 2\} \quad B = \{0; 3; 6; 9; 12\}$$

$$2. A \cup B = \{-2; -1; 0; 1; 2; 3; 6; 9; 12\}$$

$$A \cap B = \{\emptyset\}$$

$$A \setminus B = \{-2; -1; 1; 2\}$$

$$B \setminus A = \{3; 6; 9; 12\}$$

EXERCICE 5

$$1. A \cup B = \{0; 1; 2; 3; 4\} \quad A \cap B = \{\emptyset\}$$

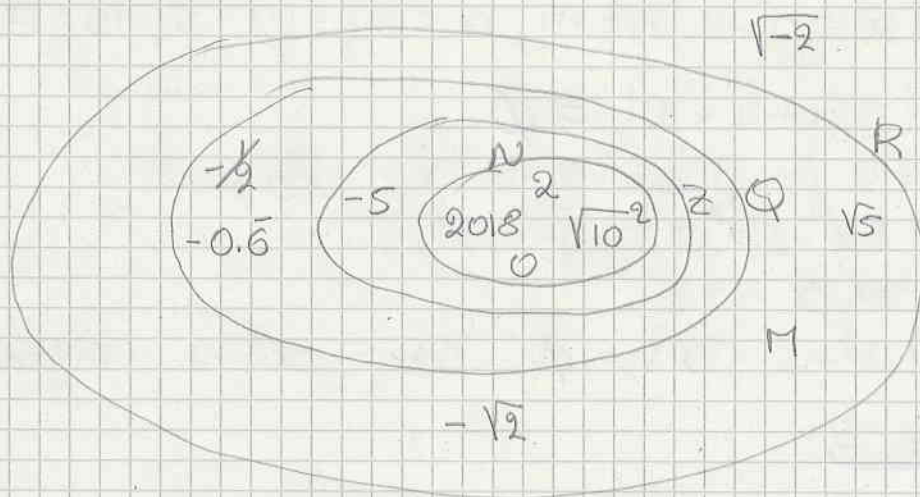
par ex.

$$A = \{0; 1; 2\} \quad B = \{3; 4\}$$

$$2. A \cup B = \{0; 1; 2; 3; 4\} \quad A \cap B = \{2; 4\}$$

par exemple

$$A = \{0; 1; 2; 4\} \quad B = \{2; 3; 4\}$$

EXERCICE 6EXERCICE 7

$$\pi \in \mathbb{R} \quad \sqrt[3]{2} \notin \mathbb{N} \quad \mathbb{Q} \supset \mathbb{Z} \quad -\sqrt[3]{8} \in \mathbb{Z} \quad \sqrt{10} \in \mathbb{C}$$

$$\mathbb{N}^* \subset \mathbb{R} \quad \mathbb{N} \not\subset \mathbb{Z}^* \quad \mathbb{R}^* = \mathbb{R} \setminus \{0\} \quad \mathbb{Z} \supset \mathbb{R}^* \cap \{0\}$$

 $\emptyset$

$$]-1; 0[\not\subset \mathbb{Z}$$

EXERCISE 8

$$A = \{x \in \mathbb{R} \mid x \leq 5\} =]-\infty; 5]$$

$$B = \{x \in \mathbb{R} \mid x \notin \{-2; 2\}\} =]-\infty; -2[\cup]-2; 2[\cup]2; +\infty[$$

$$C = \{x \in \mathbb{R} \mid -2 \leq x < 4\} = [-2; 4[$$

$$D = \{x \in \mathbb{R} \mid x > -1\} =]-1; +\infty[$$

$$E = \{x \in \mathbb{R} \mid -4 < x < 5\} =]-4; 5[$$

$$F = \{x \in \mathbb{R} \mid -2 \leq x \text{ et } 2 \leq x\} = [2; +\infty[$$