

TD ch 1 - Corrigé partiel

2 $A = -\frac{13}{12}$ $B = \frac{17}{12}$ $C = -\frac{55}{68}$ $D = 1$ $E = -\frac{253}{35}$

$F = \frac{2}{3}$ $G = 70\sqrt{2}$ $H = ab^7$ $I = a^n b^{3n} (a^n - b^n)$

$J = 0,62$ $K = \sqrt{2} - 1$ $L = \sqrt{3}$ $M = 4 \times 3^n$ $N = 1$

$O = \frac{1-a^n}{2^n}$ $P = \frac{1}{2^{n+1}}$ $Q = a^{2n^2-n} = a^{n(n-1)}$

3 $A = 4\sqrt{2}$ $B = 3\sqrt{2}$ $C = 2+2\sqrt{2}$ $D = 2\sqrt{3}$

$E = \frac{9}{4} + \frac{3}{4}\sqrt{3}$ $F = \frac{1}{6} + \frac{1}{12}\sqrt{10}$ $G = \sqrt{3}$ $H = \sqrt{3}$ $I^2 = 10$
donc $I = \sqrt{10}$

4 b) $(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$

c) $(a-b)^4 = a^4 - 4a^3b + 6a^2b^2 - 4ab^3 + b^4$

9 $(E_1) \mathcal{Y} =]-\infty; -2[\cup]0; +\infty[$

$(E_2) \mathcal{Y} = \mathbb{R} \setminus \{1\}$

$(E_3) \mathcal{Y} = \{0; 2\}$

$(E_4) \mathcal{Y} = \{2\}$

$(E_5) \mathcal{Y} = \{3\}$

$(E_6) \mathcal{Y} =]-\sqrt{2}, \sqrt{2}[$

$(E_7) \mathcal{Y} = \{1, -2\}$

$(E_8) \mathcal{Y} = \{-2, 1\}$

$(E_9) \mathcal{Y} = [-1, 1]$

$(E_{10}) \mathcal{Y} = \{2\}$

$(E_{11}) \mathcal{Y} = \{-1, -2\}$

$(E_{12}) \mathcal{Y} =]-1, -2[$

$(E_{13}) \mathcal{Y} =]-\infty; -2[\cup [\frac{1}{7}; 1[$

$(E_{14}) \mathcal{Y} =]-4, -2[\cup]0, 4[$

$(E_{15}) \mathcal{Y} =]-\frac{1}{2}, \frac{1}{2}[$

10 (F₁) $\mathcal{Y} = \{2\}$

(F₂) $\mathcal{Y} = \mathbb{R}^+$

(F₃) $\mathcal{Y} = [15-6\sqrt{5}, 15+6\sqrt{5}]$

(F₄) $\mathcal{Y} = \left\{ \frac{3+\sqrt{5}}{2} \right\}$

(F₅) $\mathcal{Y} =]-\infty, -1]$

(F₆) $\mathcal{Y} = \emptyset$

(F₇) $\mathcal{Y} = \mathbb{R}^-$

(F₈) $\mathcal{Y} = [-2, 2]$

(F₉) $\mathcal{Y} = \{1, 3, 1-\sqrt{2}, 1+\sqrt{2}\}$

(F₁₀) $\mathcal{Y} = [0, 1] \cup [49, +\infty[$

(F₁₁) $\mathcal{Y} = \left[\frac{3-2\sqrt{2}}{2}, \frac{5-\sqrt{13}}{2} \right] \cup \left[\frac{5+\sqrt{13}}{2}, \frac{3+2\sqrt{2}}{2} \right]$
 $\mathcal{Y} = [3-2\sqrt{2}, 3+2\sqrt{2}]$

11 (G₁) $\mathcal{Y} = \{-3\}$

(G₂) $\mathcal{Y} = \emptyset$

(G₃) $\mathcal{Y} =]0, \frac{1}{2}[$

(G₄) $\mathcal{Y} = [e^{-1}, e^4]$

(G₅) $\mathcal{Y} = \emptyset$

(G₆) $\mathcal{Y} =]-\infty, -7[\cup]1, +\infty[$

(G₇) $\mathcal{Y} =]0, 1[$

(G₈) ~~$\mathcal{Y} = \emptyset$~~

(G₉) $\mathcal{Y} = \left\{ \ln\left(\frac{3+\sqrt{13}}{2}\right) \right\}$

(G₁₀) $\mathcal{Y} = \emptyset$ avec pour équation

$$e^{\sin x} - \frac{9}{e^{\sin x}} \geq 0 \text{ (erreur erreur)}$$

12 a) $\mathcal{Y} = \mathbb{R}^+$

b) $\mathcal{Y} = \mathbb{R}$

c) $\mathcal{Y} = \mathbb{R}^-$

13 a) $\mathcal{Y} = \left[-\frac{7}{2}, -\frac{5}{2}\right]$

b) $\mathcal{Y} = [\ln(2), \ln(3)[$

c) $\mathcal{Y} =]-\sqrt{5}, -1] \cup [1, \sqrt{5}[$

d) $\mathcal{Y} = [-2\sqrt{2}, -\sqrt{3}] \cup [\sqrt{3}, 2\sqrt{2}[$