LDDR Niveau 2 TE 7 : Ensembles – Calcul Algebrique

Prec-Pre small test (16.09.2016)

1) $A=[3;7[$ $\overline{A}=?$ $\quad]-\infty;3[\cup[7;\infty[$

2) $]7;12[\cap[6;13]=]7;12[$

3) $\{x\in\mathbb{R}\mid |x|\geq 4\}=]-\infty;-4]\cup[4;\infty[$

4) $\{x\in\mathbb{R}\mid 3<x^2\leq 10\}=[-\sqrt{10};-\sqrt{3}[\cup]\sqrt{3};\sqrt{10}]$

5) $\sqrt[3]{x^2}=x^{2/3}$ $\qquad \frac{1}{\sqrt[5]{x}}=x^{-1/5}$

6) $25^{-1/2}=\frac{1}{\sqrt{25}}=\frac{1}{5}$

$8^{2/3}=\sqrt[3]{8}^2=2^2=4$

$\sqrt[3]{\sqrt{a^{24}}}=\sqrt[3]{a^{12}}=a^4$

$\frac{x^3}{\sqrt{x}}:x^{-2}=x^{3-\frac{1}{2}-(-2)}=x^{5/2}$

7) $\frac{2}{\sqrt{3}}=\ldots\frac{2\sqrt{3}}{3}$

$\frac{4}{1-\sqrt{5}}=\frac{4(1+\sqrt{5})}{(1-\sqrt{5})(1+\sqrt{5})}=\frac{4+4\sqrt{5}}{1-5}=\frac{4+4\sqrt{5}}{-4}=-1-\sqrt{5}$

Prec-Training 16.09.2016

$A=[-5;7[$ $\quad B=]-7;5]$ $\quad C=[3;11[$

1) $A\cup B=[-5;7[\cup]-7;5]=]-7;7[$

2) $B\cup C=]-7;5[\cup[3;11[=]-7;11[$

3) $A\setminus B=[-5;7[\setminus]-7;5]=]5;7[$

4) $A\cap B=[-5;7[\cap]-7;5]=[-5;5]$

5) $\overline{A}=]-\infty;-5[\cup[7;\infty[$

6) $\overline{(B\cup C)}=\overline{]-7;11[}=]-\infty;-7]\cup[11;\infty[$

7) $\{x\in\mathbb{R}\mid x^2>16\}=]-\infty;-4[\cup]4;\infty[$

8) $\{x\in\mathbb{R}\mid |x|\leq 5\}=[-5;5]$

9) $\{x\in\mathbb{R}\mid 1<|x|<8\}=]-8;-1[\cup]1;8[$

10) $\sqrt{a}=a^{1/2}$

$\sqrt[3]{a}=a^{1/3}$

$\sqrt{a^5}=a^{5/2}$

$\frac{1}{a}=a^{-1}$

$\frac{1}{a^3}=a^{-3}$

$\frac{1}{\sqrt[3]{a^2}}=a^{-2/3}$

11) $\frac{12}{\sqrt{8}}=\frac{12\sqrt{8}}{8}=\frac{3\sqrt{8}}{2}=\frac{3\cdot 2\sqrt{2}}{2}=3\sqrt{2}$

$\frac{3+\sqrt{2}}{1-\sqrt{2}}=\frac{(3+\sqrt{2})(1+\sqrt{2})}{(1-\sqrt{2})(1+\sqrt{2})}$

$=\frac{3+3\sqrt{2}+\sqrt{2}+2}{1-2}=\frac{5+4\sqrt{2}}{-1}$

$=-5-4\sqrt{2}$