*La Providence - Montpellier*

**CORRIGE – M. QUET**

## EXERCICE 1 :

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|---|---|---|---|
| **a.** | $3^2 = 9$ | donc | $\sqrt{9} = 3$ |
| **b.** | $17^2 = 289$ | donc | $\sqrt{289} = 17$ |
| **c.** | $4^2 = \mathbf{16}$ | donc | $\sqrt{16} = 4$ |
| **d.** | $12^2 = 144$ | donc | $\sqrt{144} = 12$ |
| **e.** | $6^2 = \mathbf{36}$ | donc | $\sqrt{36} = 6$ |
| **f.** | $\mathbf{4}^2 = 16$ | donc | $\sqrt{16} = 4$ |
| **g.** | $\mathbf{5}^2 = \mathbf{25}$ | donc | $\sqrt{25} = 5$ |
| **h.** | $7^2 = \mathbf{49}$ | donc | $\sqrt{49} = 7$ |
| **i.** | $\mathbf{9}^2 = 81$ | donc | $\sqrt{81} = 9$ |
| **j.** | $\mathbf{8}^2 = \mathbf{64}$ | donc | $\sqrt{64} = 8$ |

## EXERCICE 2 :

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|---|---|
| **a.** $\sqrt{4} = 2$ | **b.** $\sqrt{100} = 10$ |
| **c.** $\sqrt{900} = 30$ | **d.** $\sqrt{0{,}01} = 0{,}1$ |
| **e.** $\sqrt{(3{,}14)^2} = 3{,}14$ | **f.** $\sqrt{\left(\frac{2}{5}\right)^2} = \frac{2}{5}$ |
| **g.** $\sqrt{\frac{9}{25}} = \frac{3}{5}$ | **h.** $\sqrt{\frac{49}{36}} = \frac{7}{6}$ |
| **i.** $\sqrt{\frac{1}{81}} = \frac{1}{9}$ | **j.** $\sqrt{\frac{121}{100}} = \frac{11}{10}$ |

## EXERCICE 3 :

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|---|---|
| **a.** $\sqrt{3\,600} = 60$ | **b.** $\sqrt{0{,}04} = 0{,}2$ |
| **c.** $\sqrt{1\,000\,000} = 1\,000$ | **d.** $\sqrt{10^6} = 10^3$ |
| **e.** $\sqrt{10^{14}} = 10^7$ | **f.** $\sqrt{10^{-4}} = 10^{-2}$ |
| **g.** $\sqrt{4 \times 10^8} = 2 \times 10^4$ | **h.** $\sqrt{25 \times 10^{-12}} = 5 \times 10^{-6}$ |
| **i.** $\sqrt{(-7)^2} = 7$ | **j.** $\sqrt{(-1)^2} = 1$ |

## EXERCICE 4 :

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| $3\sqrt{2} + 5\sqrt{2} - 7\sqrt{2} + 2\sqrt{2} = (3+5-7+2)\sqrt{2} = 3\sqrt{2}$ |
| $5\sqrt{5} - 6\sqrt{3} - 8\sqrt{3} + \sqrt{5} = 6\sqrt{5} - 14\sqrt{3}$ |
| $-4\sqrt{11} + 11\sqrt{11} + 13\sqrt{11} = (-4+11+13)\sqrt{11} = 20\sqrt{11}$ |
| $3\sqrt{7} - 3\sqrt{5} - 5\sqrt{7} + 7\sqrt{5} = -2\sqrt{7} + 4\sqrt{5}$ |
| $-8\sqrt{2} - 2\sqrt{11} + 3\sqrt{11} - 7\sqrt{2} = -15\sqrt{2} + \sqrt{11}$ |

## EXERCICE 5 :

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|---|---|
| $\sqrt{2} \times 3\sqrt{2} = 3 \times \sqrt{2} \times \sqrt{2}$ $= 3 \times 2 = 6$ | $2\sqrt{7} \times 5\sqrt{7} = 2 \times 5 \times \sqrt{7} \times \sqrt{7}$ $= 10 \times 7 = 70$ |
| $3\sqrt{5} \times 4\sqrt{5}$ $= 3 \times 4 \times \sqrt{5} \times \sqrt{5}$ $= 12 \times 5 = 60$ | $-\sqrt{2} \times \sqrt{2} = -2$ |
| $-3\sqrt{2} \times (-5\sqrt{2})$ $= 3 \times 5 \times \sqrt{2} \times \sqrt{2}$ $= 15 \times 2 = 30$ | $7\sqrt{3} \times (-2\sqrt{3})$ $= -7 \times 2 \times \sqrt{3} \times \sqrt{3}$ $= -14 \times 3 = -42$ |
| $5\sqrt{5} \times (-2\sqrt{5})$ $= -5 \times 2 \times \sqrt{5} \times \sqrt{5}$ $= -10 \times 5 = -50$ | $\sqrt{2} \times \sqrt{2} \times \sqrt{2} = 2\sqrt{2}$ |

## EXERCICE 6 :

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|---|---|
| $(\sqrt{5})^2 = 5$ | $(3\sqrt{2})^2 = 3\sqrt{2} \times 3\sqrt{2}$ $= 3 \times 3 \times \sqrt{2} \times \sqrt{2}$ $= 9 \times 2 = 18$ |
| $(-2\sqrt{3})^2 = 2\sqrt{3} \times 2\sqrt{3}$ $= 2 \times 2 \times \sqrt{3} \times \sqrt{3}$ $= 4 \times 3 = 12$ | $(2\sqrt{11})^2 = 2\sqrt{11} \times 2\sqrt{11}$ $= 2 \times 2 \times \sqrt{11} \times \sqrt{11}$ $= 4 \times 11 = 44$ |
| $(5\sqrt{2})^2 = 5\sqrt{2} \times 5\sqrt{2}$ $= 5 \times 5 \times \sqrt{2} \times \sqrt{2}$ $= 25 \times 2 = 50$ | $(6\sqrt{3})^2 = 6\sqrt{3} \times 6\sqrt{3}$ $= 6 \times 6 \times \sqrt{3} \times \sqrt{3}$ $= 36 \times 3 = 108$ |
| $(-2\sqrt{7})^2 = 2\sqrt{7} \times 2\sqrt{7}$ $= 2 \times 2 \times \sqrt{7} \times \sqrt{7}$ $= 4 \times 7 = 28$ | $(-9\sqrt{11})^2$ $= 9\sqrt{11} \times 9\sqrt{11}$ $= 9 \times 9 \times \sqrt{11} \times \sqrt{11}$ $= 81 \times 11 = 891$ |

**EXERCICE 7 :**

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| $2\,(\,3+\sqrt{5}\,)=2\times3+2\times\sqrt{5}=6+2\sqrt{5}$ |
| $3\,(\,6-\sqrt{2}\,)=\mathbf{3\times6-3\times\sqrt{2}=18-3\sqrt{2}}$ |
| $5\,(\,3\sqrt{2}+4\,)=\mathbf{5\times3\sqrt{2}+5\times4=15\sqrt{2}+20}$ |
| $-3\,(\,5\sqrt{3}-7\,)=\mathbf{-3\times5\sqrt{3}+3\times7=-15\sqrt{3}+21}$ |
| $\sqrt{3}\,(\,4+\sqrt{3}\,)=\mathbf{\sqrt{3}\times4+\sqrt{3}\times\sqrt{3}=4\sqrt{3}+3}$ |
| $3\sqrt{2}\,(\,4+\sqrt{2}\,)=\mathbf{3\sqrt{2}\times4+3\sqrt{2}\times\sqrt{2}=12\sqrt{2}+6}$ |
| $2\sqrt{3}\,(\,5-2\sqrt{3}\,)=\mathbf{2\sqrt{3}\times5-2\sqrt{3}\times2\sqrt{3}}$<br>$\mathbf{=10\sqrt{3}-4\times3=10\sqrt{3}-12}$ |
| $-2\sqrt{5}\,(\,3\sqrt{5}+2\,)=\mathbf{-2\sqrt{5}\times3\sqrt{5}-2\sqrt{5}\times2}$<br>$\mathbf{=-6\times5-4\sqrt{5}=-30-4\sqrt{5}}$ |
| $5\sqrt{7}\,(\,-4+3\sqrt{7}\,)=\mathbf{-5\sqrt{7}\times4+5\sqrt{7}\times3\sqrt{7}}$<br>$\mathbf{=-20\sqrt{7}+15\times7=-20\sqrt{7}+105}$ |
| $-9\sqrt{11}\,(\,-2\sqrt{11}-6\,)=\mathbf{9\sqrt{11}\times2\sqrt{11}+9\sqrt{11}\times6}$<br>$\mathbf{=18\times11+54\sqrt{11}=198+54\sqrt{11}}$ |