

4<sup>e</sup> : SOLUTIONS DES EXERCICES DE PRÉPARATION AU CS n° 1.

RADICAUX

1. a)  $\frac{3}{\sqrt{3}} = \frac{3}{3^{1/2}} = 3^{1-1/2} = 3^{1/2}$

b)  $4 \cdot \sqrt[3]{4} = 4 \cdot 4^{1/3} = 4^{1+1/3} = 4^{4/3}$

c)  $(\sqrt[3]{8})^5 = 2^5 = 32$

d)  $\frac{2\sqrt{5}}{10} = \frac{\sqrt{5}}{5} = \frac{5^{1/2}}{5} = 5^{\frac{1}{2}-1} = 5^{-1/2}$

e)  $\frac{2\sqrt[3]{2}}{4} = \frac{2^{1/3}}{2^2} = 2^{1/3-2} = 2^{-5/3}$

f)  $(\sqrt{2})^3 = (2^{1/2})^3 = 2^{3/2}$

g)  $\frac{100}{\sqrt{10}} = \frac{10^2}{10^{1/2}} = 10^{2-1/2} = 10^{3/2}$

h)  $\frac{\sqrt[4]{81}}{9} = \frac{81^{1/4}}{9} = \frac{(9^2)^{1/4}}{9} = \frac{9^{1/2}}{9} = 9^{1/2-1} = 9^{-1/2}$

2. a) 10,1564    b) 2,5179    c) 11,1924    d) 5,6234

3. a)  $x^3 = -1000 \Leftrightarrow x = \sqrt[3]{-1000} = -10$

b)  $2x^3 = 128 \Leftrightarrow x^3 = 64 \Leftrightarrow x = \sqrt[3]{64} = 4$

c)  $x^5 - x^3 = 0 \Leftrightarrow x^3 \cdot (x^2 - 1) = 0 \Leftrightarrow x^3 = 0$  ou  $x^2 - 1 = 0$   
 $\Leftrightarrow x = 0$  ou  $x = 1$  ou  $x = -1$

d)  $x^2 = 121 \Leftrightarrow x = 11$  ou  $x = -11$

e)  $5x^3 = 2 \Leftrightarrow x^3 = \frac{2}{5} \Leftrightarrow x = \sqrt[3]{\frac{2}{5}}$

f)  $5x^3 - 2x = 0 \Leftrightarrow x \cdot (5x^2 - 2) = 0 \Leftrightarrow x = 0$  ou  $x^2 = \frac{2}{5}$   
 $\Leftrightarrow x = 0$  ou  $x = \sqrt{\frac{2}{5}}$  ou  $x = -\sqrt{\frac{2}{5}}$

4. a)  $64^{-1/3} = \frac{1}{64^{1/3}} = \frac{1}{\sqrt[3]{64}} = \frac{1}{4}$

b)  $(\frac{25}{9})^{1/2} = \sqrt{\frac{25}{9}} = \frac{5}{3}$

c)  $25^{3/2} = (25^{1/2})^3 = (\sqrt{25})^3 = 5^3 = 125$

d)  $100^{-5/2} = \frac{1}{100^{5/2}} = \frac{1}{(100^{1/2})^5} = \frac{1}{(\sqrt{100})^5} = \frac{1}{10^5} = 0,00001$