Ejercicios de la hoja de TEORÍA DE RADICALES

1. Calcular mentalmente, sin usar calculadora.

$\sqrt{100} = \sqrt{10^2} = \pm 10$

$\sqrt{1} = \pm 1$

$\sqrt{\frac{4}{25}} = \sqrt{\frac{2^2}{5^2}} = \frac{\sqrt{2^2}}{\sqrt{5^2}} = \frac{\pm 2}{5}$

$\sqrt{7^6} = 7^{6/2} = \pm 7^3$

$\sqrt{\frac{16}{100}} = \sqrt{\frac{4^2}{10^2}} = \frac{\sqrt{4^2}}{\sqrt{10^2}} = \frac{4}{10} = \frac{\pm 2}{5}$

$\sqrt{0{,}49} = \sqrt{\frac{49}{100}} = \sqrt{\frac{7^2}{10^2}} = \frac{\sqrt{7^2}}{\sqrt{10^2}} = \frac{\pm 7}{10}$

2. Calcular mentalmente, sin usar calculadora:

$\sqrt[3]{1000} = \sqrt[3]{10^3} = 10$

$\sqrt[3]{1331} = \sqrt[3]{11^3} = 11$

$\sqrt[3]{-27} = \sqrt[3]{-3^3} = -3$

$\sqrt[3]{-1000} = \sqrt[3]{-10^3} = -10$

$\sqrt[3]{\frac{-64}{125}} = \sqrt[3]{\frac{-2^6}{5^3}} = \frac{-2^{6/3}}{5^{3/3}} = \frac{-2^2}{5} = \frac{-4}{5}$

$\sqrt[3]{\frac{64}{1000}} = \sqrt[3]{\frac{2^6}{10^3}} = \frac{\sqrt[3]{2^6}}{\sqrt[3]{10^3}} = \frac{2^{6/3}}{10^{3/3}} = \frac{2^2}{10} = \frac{4}{10} = \frac{2}{5}$

$\sqrt[3]{0{,}001} = \sqrt[3]{\frac{1}{1000}} = \sqrt[3]{\frac{1}{10^3}} = \frac{\sqrt[3]{1}}{\sqrt[3]{10^3}} = \frac{1}{10}$

$\sqrt[3]{-0{,}216} = \sqrt[3]{\frac{-216}{1000}} = \sqrt[3]{-\frac{6^3}{10^3}} = \frac{\sqrt[3]{-6^3}}{\sqrt[3]{10^3}} = \frac{-6}{10} = \frac{-3}{5}$

(3)

c) $\sqrt[6]{-1} \nexists$

d) $\sqrt[5]{-32} = \sqrt[5]{-2^5} = -2$

g) $\sqrt[6]{2^6} = \pm 2$

h) $\sqrt{\frac{625}{81}} = \sqrt{\frac{5^4}{3^4}} = \frac{\pm 5^2}{3^2} = \frac{\pm 25}{9}$

k) $\sqrt[5]{3^{15}} = 3^{15/5} = 3^3 = 27$

l) $\sqrt[3]{0{,}064} = \sqrt[3]{\frac{64}{10^3}} = \sqrt[3]{\frac{2^6}{10^3}} = \frac{2^2}{10} = \frac{4}{10} = \frac{2}{5}$

o) $\sqrt{2{,}7} = \sqrt{\frac{27-2}{9}} = \frac{\sqrt{25}}{\sqrt{9}} = \frac{\pm 5}{3}$