EJERCICIOS FRACCIONES, POTENCIAS Y RAÍCES 3º ESO

1) Realiza las siguientes operaciones:

$\sqrt{5} + \sqrt{45} + \sqrt{180} - \sqrt{80}$

$\sqrt{24} - 5\sqrt{6} + \sqrt{486}$

$\sqrt[3]{54} - 2 \cdot \sqrt[3]{16}$

$27\sqrt{3} - 5\sqrt{27} - 9\sqrt{12}$

$\sqrt{75} - \sqrt{20} - \sqrt{12} + \sqrt{45}$

2) Simplifica:

$$\frac{27^{-1} \cdot 81 \cdot 3^4 \cdot \left(\frac{2^3}{3}\right)^{-1} \cdot 2^3}{36 \cdot \left(\frac{1}{3}\right)^{-2} \cdot \frac{4}{3} \cdot \frac{27}{16} \cdot \left(2^0\right)^{-2}} =$$

$$\frac{(-27)^3 \cdot 32^{-5} \cdot (-8)^5 \cdot \left(25^2\right)^{-6}}{(-72)^4 \cdot \left(-50^3\right)^4} =$$

$$\frac{\sqrt{\frac{a}{b}\sqrt[3]{2a^{-2}\sqrt{\frac{b^3}{a}}}}}{2\sqrt{ab^2}} =$$

$$\sqrt{9xy}+\frac{xy}{\sqrt{4xy}}+\frac{\sqrt[6]{(xy)^{21}}}{x^3y^3}=$$

3) Opera:

$$\frac{1-\frac{1}{2}+\frac{1}{3}\cdot\frac{1}{5}-3}{\left(1-\frac{1}{2}\right)\cdot\left(\frac{1}{3}+\frac{1}{5}\right)+3}=$$

$$\frac{\left(\frac{2}{5}:3+\frac{1}{2}\right)\cdot\frac{1}{3}-\frac{2}{7}}{\frac{2}{5}\cdot 3-\left(\frac{1}{2}+\frac{1}{3}\right)\cdot\frac{2}{7}}=$$

$$\frac{\frac{3}{5}:\left(1-\frac{2}{3}\cdot\frac{9}{4}\right)+3}{\left[\frac{1}{7}\cdot\left(\frac{2}{7}-\frac{1}{3}\right)+\frac{5}{2}\right]:\frac{1}{2}}=$$

$$\frac{\frac{1}{2}+\frac{3}{2}\cdot\frac{1}{6}}{\left(\frac{1}{2}+\frac{3}{2}\right):\frac{1}{6}}=$$

$$\frac{\frac{1}{2}+\frac{3}{5}:\frac{2}{3}-4}{\left(3+\frac{2}{5}\right)\cdot\frac{1}{3}}=$$

$$\frac{\left(2+\frac{1}{3}\right)\cdot\left(4-\frac{2}{3}\right)}{1+\frac{5}{4}:\frac{3}{12}}=$$