

Corrección 1^{er} Control - 1^{er} Evaluación Matemáticas - 1^{er} Bach - Letras

1-10-18

1) a) $\frac{2\sqrt{5}}{5-3\sqrt{2}} \cdot \frac{5+3\sqrt{2}}{5+3\sqrt{2}} = \frac{10\sqrt{5}+6\sqrt{10}}{25-18} = \boxed{\frac{10\sqrt{5}+6\sqrt{10}}{7}}$

b) $\frac{2\sqrt[3]{9}}{\sqrt[3]{3^2}} \cdot \frac{\sqrt[3]{3}}{\sqrt[3]{3}} = \frac{2\sqrt[3]{3^2 \cdot 3^2}}{3} = \boxed{\frac{2\sqrt[3]{3^5}}{3}}$

c) $5(2\sqrt[4]{2}) - \frac{1}{2}(3\sqrt[4]{2}) + (5\sqrt[4]{2}) - \frac{1}{3}(6\sqrt[4]{2}) = 10\sqrt[4]{2} - \frac{3}{2}\sqrt[4]{2} + 5\sqrt[4]{2} - 2\sqrt[4]{2}$
 $= \boxed{\frac{23}{2}\sqrt[4]{2}}$

d) $\sqrt[3]{3^5} \cdot \sqrt{3} = \sqrt[6]{3^{10} \cdot 3^2} = \sqrt[6]{3^{12}} = \boxed{9\sqrt{3}}$

2) a) $\log_9 \sqrt[2]{3^3} = x \rightarrow 9^x = 3^{3/2} \rightarrow 3^{2x} = 3^{3/2} \rightarrow 2x = 3/2 \rightarrow \boxed{x = 3/4}$

b) $\log_x 25 = 2 \rightarrow x^2 = 5^2 \rightarrow \boxed{x = 5}$

c) $\log_3 x = 4 \rightarrow x = 3^4 \rightarrow \boxed{x = 81}$

3) a) $\log E - \log x + 2\log y - \frac{1}{2}\log z = 0$

$\log \frac{E \cdot y^2}{x\sqrt{z}} = 0 \rightarrow \frac{E y^2}{x\sqrt{z}} = 10^0 \rightarrow \boxed{E = \frac{x\sqrt{z}}{y^2}}$

b) $3^x = 125 \rightarrow x = \log_3 125 = \boxed{3\log_3 5}$

4) $P(x) = (x-1)(x+1)(x+5)(x-5)$ b) $Q(x) = 2x^2(x^2+2x+1)$

a)
$$\begin{array}{r|rrrrr} 1 & 1 & 0 & -26 & 0 & 25 \\ & 1 & 1 & -25 & -25 & \\ \hline 1 & 1 & -25 & -25 & & 0 \\ -1 & -1 & 0 & 25 & & \\ \hline 1 & 0 & -25 & & & 0 \end{array}$$

$x = \frac{0 \pm \sqrt{100}}{2} = \pm 5$

c) $R(x) = (x+1)(x-3)(x+2)$

$$\begin{array}{r|rrrr} -1 & 1 & 0 & -7 & -6 \\ & & -1 & 7 & 6 \\ \hline 1 & 1 & -1 & -6 & 0 \end{array}$$

$\frac{1 \pm \sqrt{1+24}}{2} = \frac{1 \pm 5}{2}$
3 -2

5) $\frac{3x^4 + 2x^3 + 5x + 8}{x-2} = 3x^3 + 4x^2 + 8x + 21 + \frac{50}{x-2}$

$$\begin{array}{r|rrrrr} & 3 & -2 & 0 & 5 & 8 \\ 2 & & 6 & 8 & 16 & 42 \\ \hline & 3 & 4 & 8 & 21 & 50 \end{array}$$

6) a) $\frac{x}{x+1} - \frac{x-2}{x-1} - \frac{5}{(x-1)(x+1)} = \frac{x(x-1) - (x-2)(x+1) - 5}{(x-1)(x+1)} = \frac{x^2 - x - x^2 + x + 2x - 2 - 5}{(x-1)(x+1)}$

$= \frac{2x-7}{x^2-1}$

b) $\frac{(x+1)^2 \cdot 3}{3(x+1)(x+1)(x-1)} = \frac{1}{x-1}$