	COLEGIO ITALICA Arguijo 5-7 SEVILLA 41003	**MATEMATICAS 4º ESO** EVAL: 1ª FECHA: 10-10-2018	
NOMBRE			Nº:

<u>Ejercicio 1:</u> Simplifica las siguientes expresiones con radicales:

a) $\sqrt{24}\cdot\sqrt{108}=\sqrt{2^3\cdot 3\cdot 2^2\cdot 3^3}=\sqrt{2^5\cdot 3^4}=4\cdot 9\sqrt{2}=\boxed{36\sqrt{2}}$

b) $\sqrt{x^2\cdot\sqrt[3]{x}}=\sqrt{\sqrt[3]{x^6\cdot x}}=\sqrt[6]{x^7}=\boxed{x\sqrt[6]{x}}$

c) $\sqrt{2}+3\sqrt{8}-\sqrt{50}+\sqrt[8]{16}=\sqrt{2}+6\sqrt{2}-5\sqrt{2}+\sqrt{2}=\boxed{3\sqrt{2}}$

d) $\dfrac{\sqrt[3]{4a}}{\sqrt[4]{8a}}=\dfrac{\sqrt[12]{\left(2^2a\right)^4}}{\sqrt[12]{\left(2^3a\right)^3}}=\sqrt[12]{\dfrac{2^8a^4}{2^9a^3}}=\boxed{\sqrt[12]{\dfrac{a}{2}}}$

e) $\dfrac{\sqrt{2x}\cdot\sqrt{2\sqrt{x}}}{\sqrt[3]{4x^2}}=\dfrac{\sqrt{2x}\cdot\sqrt[4]{4x}}{\sqrt[3]{4x^2}}=\dfrac{\sqrt[12]{2^6x^6}\cdot\sqrt[12]{4^3x^3}}{\sqrt[12]{4^4x^8}}=\sqrt[12]{\dfrac{2^{12}x^9}{2^8x^8}}=\boxed{\sqrt[12]{2^4x}}$

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$$f)\ \sqrt[3]{24}-2\sqrt[3]{81}+\frac{3}{5}\sqrt[3]{375}+\sqrt[6]{9}=\sqrt[3]{2^3\cdot 3}-2\sqrt[3]{3^4}+\frac{3}{5}\sqrt[3]{5^3\cdot 3}+\sqrt[6]{3^2}=$$

$$=2\sqrt[3]{3}-6\sqrt[3]{3}+3\sqrt[3]{3}+\sqrt[3]{3}=0\sqrt[3]{3}=\boxed{0}$$

$$g)\ \frac{5}{\sqrt[7]{25}}=\frac{5\cdot\sqrt[7]{5^5}}{\sqrt[7]{5^2}\cdot\sqrt[7]{5^5}}=\frac{5\cdot\sqrt[7]{5^5}}{5}=\boxed{\sqrt[7]{5^5}}$$

$$h)\ \frac{4}{3-\sqrt{2}}=\frac{4\left(3+\sqrt{2}\right)}{\left(3-\sqrt{2}\right)\left(3+\sqrt{2}\right)}=\frac{4\left(3+\sqrt{2}\right)}{9-2}=\frac{4\left(3+\sqrt{2}\right)}{7}=\boxed{\frac{12+4\sqrt{2}}{7}}$$

$$i)\ \frac{3+\sqrt{3}}{\sqrt{3}}=\frac{\left(3+\sqrt{3}\right)\cdot\sqrt{3}}{\sqrt{3}\cdot\sqrt{3}}=\frac{3\sqrt{3}+3}{3}=\boxed{\sqrt{3}+1}$$

$$j)\ \frac{\sqrt{18}+\sqrt{10}}{3+\sqrt{5}}=\frac{\left(\sqrt{18}+\sqrt{10}\right)\left(3-\sqrt{5}\right)}{\left(3+\sqrt{5}\right)\left(3-\sqrt{5}\right)}=\frac{3\sqrt{18}-\sqrt{90}+3\sqrt{10}-\sqrt{50}}{9-5}=$$

$$=\frac{3\sqrt{3^2\cdot 2}-\sqrt{3^2\cdot 2\cdot 5}+3\sqrt{10}-\sqrt{5^2\cdot 2}}{4}=\frac{9\sqrt{2}-3\sqrt{10}+3\sqrt{10}-5\sqrt{2}}{4}=\frac{4\sqrt{2}}{4}=\boxed{\sqrt{2}}$$