NIVEL BÁSICO

1

Reducir: $M = \dfrac{2^{16}.16^{2}}{8^{8}}$

RESOLUCIÓN

Descomponer en forma canónica las bases

$$M = \frac{2^{16}.\,2^{4(2)}}{2^{3(8)}} = \frac{2^{16+8}}{2^{24}}$$

$$\therefore\ M = 1$$

$$\mathit{Simplificar:}\quad J = \sqrt[x-2]{\frac{5^{x-2}+3^{x-2}}{5^{2-x}+3^{2-x}}}$$

2

RESOLUCIÓN

Aplicamos el siguiente teorema.

$$\frac{a^{x} + b^{x}}{a^{-x}+b^{-x}} = (a.b)^{x}$$

En el ejercicio

$$J = \sqrt[\cancel{x-2}]{(5\,.\,3)^{\cancel{x-2}}} \longrightarrow J = 15$$

Calcular : "A + B + C"

3

Si: $A = \sqrt[3]{9.\sqrt[3]{9.\sqrt[3]{9\ldots}}}$ $B = \sqrt{132 + \sqrt{132 + \sqrt{132 + \ldots}}}$ $C = \sqrt[5]{\dfrac{64}{\sqrt[5]{\dfrac{64}{\sqrt[5]{\dfrac{64}{\ddots}}}}}}$

RESOLUCIÓN

$A = \sqrt[3-1]{9} = \sqrt{9}$ → $A = 3$

$132 = (11).(12)$ mayor → $B = 12$

$C = \sqrt[5+1]{64} = \sqrt[6]{64}$ → $C = 2$

$\therefore\ A + B + C = 17$

NIVEL INTERMEDIO

①

Reducir: $E = \dfrac{15^{20}.35^{10}.10^{30}}{12^{20}.25^{15}.49^{5}.5^{30}}$

RESOLUCIÓN

$$E = \frac{15^{20}.35^{10}.10^{30}}{12^{20}.25^{15}.49^{5}.5^{30}}$$

Descomponer en forma canónica las bases

$$E = \frac{3^{20}.5^{20}.5^{10}.7^{10}.2^{30}.5^{30}}{2^{2(20)}.3^{20}.5^{2(15)}.7^{2(5)}.5^{30}} = \frac{2^{30}}{2^{40}}$$

$$\therefore\ E = 2^{-10}$$