EJERCICIO MIBE3371:

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Resolver el sistema:

$$\left.\begin{array}{l} 2\log 5 + y\log 25 = x\log 125 \\ x\log 4 - 2y\log 8 = \frac{1}{2}\log 64 \end{array}\right\}$$

$$\left.\begin{array}{l} \log 5^2 + \log (5^2)^y = \log (5^3)^x \\ \log (2^2)^x - \log (2^3)^{2y} = \log (2^6)^{1/2} \end{array}\right\}$$

$$\left.\begin{array}{l} \log 5^2 + \log 5^{2y} = \log 5^{3x} \\ \log 2^{2x} - \log 2^{6y} = \log 2^3 \end{array}\right\}$$

$$\left.\begin{array}{l} \log (5^2 \cdot 5^{2y}) = \log 5^{3x} \\ \log \left(\frac{2^{2x}}{2^{6y}}\right) = \log 2^3 \end{array}\right\}$$

$$\left.\begin{array}{l} \log \boxed{5^{2+2y}} = \log \boxed{5^{3x}} \\ \log \boxed{2^{2x-6y}} = \log \boxed{2^3} \end{array}\right\}$$

$$\left.\begin{array}{l} 5^{\boxed{2+2y}} = 5^{\boxed{3x}} \\ 2^{\boxed{2x-6y}} = 2^{\boxed{3}} \end{array}\right\} \Rightarrow \left.\begin{array}{l} 2+2y = 3x \\ 2x-6y = 3 \end{array}\right\}$$

$$\left.\begin{array}{l} -3x+2y = -2 \\ 2x-6y = 3 \end{array}\right\} \begin{array}{l} (\times 3) \\ \end{array} \quad \left.\begin{array}{l} -9x+6y = -6 \\ (+)\ 2x-6y = 3 \end{array}\right\}$$

$$-7x = -3 \Rightarrow \boxed{x = \frac{3}{7}}$$

$$\begin{array}{l} (\times 2) \\ (\times 3)\ (+) \end{array} \left.\begin{array}{l} -6x+4y = -4 \\ 6x-18y = 9 \end{array}\right\}$$

$$-14y = 5 \Rightarrow \boxed{y = -\frac{5}{14}}$$