

B.123 . Resolução :

$$\log 2 = a \quad \text{e} \quad \log 3 = b$$

$$a) \log 6 \rightarrow \log (3 \cdot 2) \rightarrow \log 3 + \log 2 \rightarrow a + b$$

$$b) \log 4 \rightarrow \log (2 \cdot 2) \rightarrow \log 2 + \log 2 \rightarrow 2a$$

$$c) \log 12 \rightarrow \log (2^2 \cdot 3) \rightarrow \log 2^2 + \log 3 \rightarrow 2 \log 2 + \log 3$$

$$\begin{array}{r|l} 12 & 2 > 2^2 \\ 6 & 2 \\ 3 & 3 \\ 1 & \end{array} \rightarrow 2 \cdot \log 2 + \log 3 \rightarrow 2 \cdot a + b \rightarrow 2a + b$$

$$d) \log \sqrt{2} \rightarrow \log 2^{1/2} \rightarrow \frac{1}{2} \cdot \log 2 \rightarrow \frac{a}{2}$$

$$e) \log 0,5 \rightarrow \log \left(\frac{1}{2} \right) \rightarrow \log 1 - \log 2 \rightarrow -a$$

$$f) \log 20 \rightarrow \log (10 \cdot 2) \rightarrow \log 10 + \log 2 \rightarrow 1 + a$$

$$g) \log 5 \rightarrow \log \left(\frac{10}{2} \right) \rightarrow \log 10 - \log 2 \rightarrow 1 - a$$

$$h) \log 15 \rightarrow \log (3 \cdot 5) \rightarrow \log 3 + \log 5 \rightarrow \log 3 + \log \left(\frac{10}{2} \right) \rightarrow$$

$$b + \log 10 - \log 2 \rightarrow b + 1 - a$$