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① $(1,1)$ و $(3,9)$ $\rightarrow$ $\begin{matrix} A+B=0 \\ 3A+B=2 \end{matrix}$ $\rightarrow$ $\boxed{A=1}$ $\quad$ $\boxed{B=-1}$

$3^{x-1} \rightarrow 3^{-1} = \boxed{\frac{1}{3}}$

② $4^{x} + 15 = 2^{x+3} \rightarrow t^2 - 8t + 15 = 0 \rightarrow (t-3)(t-5)=0$

$2^{x_1} = 3$ و $2^{x_2} = 5 \rightarrow 2^{x_1+x_2} = 15 \rightarrow x_1 + x_2 = \log_2^{15}$

③ $\log_{21}^{3} = t \rightarrow t^2 + \underbrace{(\underbrace{1+1-t}_{2-t})(2+t)}_{4-t^2} = \boxed{4}$

④ $(x-1)^2 \times (1-x)^4 = 10^5 \rightarrow (1-x)^5 = 10^5 \rightarrow \boxed{x=-9}$

$\log_{\mu=2}^{-x}$ $\quad$ 1,5

⑤ $(x^2+2x+4)(x-2) = 8 \rightarrow \rightarrow x^3 - 8 = 8 \rightarrow x^3 = 16 \rightarrow x = 2\sqrt[3]{2}$

$\log_{\sqrt[3]{2}}^{\sqrt[3]{16}} = \boxed{4}$

⑥ $\frac{2-x}{} (x-2)^3 = 10^3 \rightarrow (2-x)^3 = 10^3 \rightarrow \boxed{x=-8}$ $\quad$ 1,5

$\log_{\sqrt{2}}^{-x} = \log_{2^{\frac{1}{2}}}^{2^3} = 6$

⑦ $x^2 - 2 = 6x \to x^2 - 6x - 2 \le 0 \to (x-3)^2 - 9 = 0 \to (x-3)^2 = 9$

$\log_{9}^{x-3} = \boxed{\frac{1}{2}}$ ✓

⑧ $\frac{\log_{3}^{8}}{\log_{3}^{18}} = \frac{3\log_{3}^{2}}{2 + \log_{3}^{2}} = \frac{\frac{15}{8}}{\frac{21}{8}} = \boxed{\frac{5}{7}}$ ✓

⑨ $\frac{\log_{6}^{9}}{\log_{6}^{12}} = \frac{\overbrace{\log_{6}^{3} + \frac{1}{2}}^{0/8}}{1 + \underbrace{0/8}_{\log_{6}^{3}}} = \frac{1/3}{1/8} = \boxed{\frac{13}{8}}$ ✓

⑩ $a\log^{2} + b\log^{2} = a \to \log^{2}(a+b) = a \to \log^{2} = \frac{a}{a+b}$

$\log_{2}^{10} = 1 + \frac{b}{a} \to \log_{2}^{5} = \frac{b}{a} \to (\sqrt{4})^{\log_{2}^{5}} \to 5^{\frac{1}{2}} = \boxed{\sqrt{5}}$ ✓