Q1. If $x_n > x_{n-1} > x_{n-2} \ldots > x_1 > 1$ then the value of $\log_{x_1} \log_{x_2} \log_{x_3} \ldots \log_{x_n^{x_{n-1}^{\ldots^{x_1}}}}$

Q2. Solve the equation: $\log_x \left(3x^{\log_5 x} + 4\right) = 2\log_5 x$

Q3. If $a^{\log_b c} = 3.3^{\log_4 3} \cdot 3^{\log_4 3^{\log_4 3}} \cdot \ldots \infty$ where $a, b, c \in Q$. Then the value of abc is

Q4. Solve the system of equations where $a > 0 \& a \neq 1$

$$\log_a x \log_a (xyz) = 48$$
$$\log_a y \log_a (xyz) = 12$$
$$\log_a z \log_a (xyz) = 84$$

Q5. If $5\log_{abc}\left(a^3 + b^3 + c^3\right) = 3\lambda\left(\frac{1+\log_3(abc)}{\log_3 abc}\right) \& (abc)^{a+b+c} = 1 \& \lambda = \frac{m}{n}$, where m, n are relative primes then the value of $|m+n| + |m-n|$

Q6. Find all the real numbers x which satisfy the equation

$$2\log_2 \log_2 x + \log_{\frac{1}{2}} \log_2 \left(2\sqrt{2}x\right) = 1$$