

15. If $(1.5)^a = (0.15)^b = 100$ then $\frac{1}{a} - \frac{1}{b} = \dots\dots$ (Ans: $\frac{1}{2}$)
16. If $(3.7)^a = (0.37)^b = 1000$ then $\frac{1}{a} - \frac{1}{b} = \dots\dots$ (Ans: $\frac{1}{3}$)
17. If $x = \log_{2a} a$, $y = \log_{3a} 2a$, $z = \log_{4a} 3a$ then $1 + xyz = \dots\dots$ (Ans: $2yz$)
18. If $x = \frac{a^n + a^{-n}}{a^n - a^{-n}}$ then $\frac{1}{2} \log \left(\frac{x+1}{x-1} \right) = \dots\dots$ (Ans: $2n$)
19. If $\frac{1}{\log_3 \pi} + \frac{1}{\log_4 \pi} > K$ then the least integral value of K is..... (Ans: 2)
20. If $f(x) = \log \left(\frac{1+x}{1-x} \right)$ then $f \left(\frac{2x}{1+x^2} \right) = \dots\dots$ (Ans: $2f(x)$)
21. If $\log_a(x-k) < \log_{a^2}(x-k)$ and $a > 1$ then x lies in the interval [Ans: $(k, k+1)$]
22. $\frac{\log x}{a^2 + ab + b^2} = \frac{\log y}{b^2 + bc + c^2} = \frac{\log z}{c^2 + ca + a^2}$ then $x^{a-b} \cdot y^{b-c} \cdot z^{c-a} = \dots\dots$ (Ans: 1)
23. If x, y, z are three consecutive integers then $\log(1+xz) = \dots\dots$ (Ans: $2 \log y$)
24. If $\log \left(\frac{x+y}{3} \right) = \frac{1}{2} (\log x + \log y)$ then $\frac{x}{y} + \frac{y}{x} = \dots\dots$ (Ans: 7)
25. $\log_{\frac{1}{2}} \left(\frac{x+2}{x-2} \right) > 0$ then x belongs to..... [Ans: $(-\infty, -2)$]
26. If $a^2 = b^3 = c^5 = d^6$ then $\log_d abc = \dots\dots$ (Ans: $\frac{31}{5}$)
27. $\log_3 \left(1 + \frac{1}{3} \right) + \log_3 \left(1 + \frac{1}{4} \right) + \log_3 \left(1 + \frac{1}{5} \right) + \dots\dots + \log_3 \left(1 + \frac{1}{80} \right) = \dots\dots$ (Ans: 3)