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Find the value of the expression

$$\log_2^3 \log_3^4 \log_4^5 \log_5^6 \log_6^7 \log_2^8$$

Use change of base formula:  $\log_a M = \frac{\log_b M}{\log_b a} = \frac{\ln M}{\ln a}$

$$\begin{aligned} \frac{\ln 3}{\ln 2} \cdot \frac{\ln 4}{\ln 3} \cdot \frac{\ln 5}{\ln 4} \cdot \frac{\ln 6}{\ln 5} \cdot \frac{\ln 7}{\ln 6} \cdot \frac{\ln 8}{\ln 7} &= \frac{\ln 8}{\ln 2} = \frac{\log M}{\log a} \\ &= \frac{\ln 2^3}{\ln 2} \\ &= \frac{3 \ln 2}{\ln 2} \end{aligned}$$

PRESENTATION

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