FORMULA 3.311.12

$$\int_0^\infty \frac{a^x - b^x}{c^x - d^x}\,dx = \frac{1}{(\ln c - \ln d)}\left[\psi\left(\frac{\ln c - \ln b}{\ln c - \ln d}\right) - \psi\left(\frac{\ln c - \ln a}{\ln c - \ln d}\right)\right]$$