Two more properties of log.

1) $\log_x x = 1$ 2) $\log_a x = \frac{1}{\log_x a}$

$$\frac{1}{\log_a bc+1} + \frac{1}{\log_b ac+1} + \frac{1}{\log_c ab+1}$$

$$= \frac{1}{\log_a bc + \log_a a} + \frac{1}{\log_b ac + \log_b b} + \frac{1}{\log_c ab + \log_c c} \quad \text{(apply 1 prop 1.)}$$

$$= \frac{1}{\log_a abc} + \frac{1}{\log_b abc} + \frac{1}{\log_c abc}$$

$$= \log_{abc} a + \log_{abc} b + \log_{abc} c \quad \text{(applying prop 2)}$$

$$= \log_{abc} axbxc = \log_{abc} abc = 1$$