B3 (continued from the earlier page).

We prove property 2 as follows:

By definition, $K_i = \dfrac{m_i \, 2^{m_i}}{(2^{m_i} - 1)}$

For simplicity in writing our proof, temporarily let $K = K_i$ and $m = m_i$ so that our definition may be written as:

$$K = \frac{m \cdot 2^m}{(2^m - 1)}$$

$$K(2^m - 1) = m \cdot 2^m$$

$$2^m \cdot K - K = m \cdot 2^m$$

$$2^m \cdot K = m \cdot 2^m + K$$

$$2^m \cdot K - m \cdot 2^m = K$$

$$2^m (K - m) = K$$

Or just, $$2^m = \frac{K}{(K - m)}$$

Replacing back our $m_i = m$ and $K_i = K$ respectively into the above, we obtain our deduction (proved): $$2^{m_i} = \frac{K_i}{(K_i - m_i)}$$

QED - Property 2