B3 (continued from the previous pages...)

Now we are ready to define an interesting expression for both x and y as follows:

Let $x_i = 2^{K_i - m_i}$ — (3) $\xrightarrow{\text{equivalent to}}$ $\log_2 x_i = K_i - m_i$ — (3a)

and $y_i = 2^{K_i}$ — (4) $\xrightarrow{\text{equivalent to}}$ $\log_2 y_i = K_i$ — (4a)

Consider,

$$\frac{y_i}{x_i} = \frac{2^{K_i}}{2^{K_i - m_i}}$$

using (4)

using (3)

which yields,

$$\frac{y_i}{x_i} = 2^{m_i} \quad \text{— (5)}$$

Consider also:

$$\frac{\log_2 y_i}{\log_2 x_i} = \frac{K_i}{K_i - m_i}$$

using (4a)

using (3a)

That is,

$$\frac{\log_2 y_i}{\log_2 x_i} = \frac{K_i}{(K_i - m_i)} \quad \text{— (6)}$$