$$\frac{\sum p\left(n\right)x^{n}}{\sum q\left(n\right)y^{n}}$$

$$\frac{n}{2^{n}}: \quad \frac{2^{n}3+3^{n+1}}{3^{n+2}+2^{-n}}: \quad \frac{3^{n}+2^{-n}}{2^{n}+3^{-n}}: \quad \frac{3^{n+1}+4^{n}}{2^{n}+4^{n+2}}$$