

$$3.7. a_i = i2^i$$

$$a_i = \sum_{i=0}^{\infty} i2^i x^i$$

$$f(x) = \frac{x}{(1-2x)^2}$$

$$b_i = \sum_{i=0}^{\infty} i x^i = x \cdot \left(\sum_{i=0}^{\infty} x^i \right)' \stackrel{BG}{=} x \cdot \left(\frac{1}{1-x} \right)' = \frac{x}{(1-x)^2}$$