

(2)

[BONUS
5PTS]

(4) Suppose (formally)

$$b_r = \sum_{j \geq 0} \binom{r+j}{j} a_{r+j} \quad \text{for all } r \geq 0.$$

Find polynomials $S(r, h)$ such that

$$a_r = \sum_{h \geq 0} S(r, h) b_{r+h} \quad (\text{formally}).$$

[BONUS
10PTS](5) Prove (4) holds with explicit $S(r, h)$ found.