d) $B_i^n(u) = \frac{n+1-i}{n+1} B_i^{n+1}(u) + \frac{i+1}{n+1} B_{i+1}^{n+1}(u)$

Zaczynamy od

$$B_i^n(u) = B_i^n(u) - uB_i^n(u) + uB_i^n(u) = \underbrace{(1-u)B_i^n(u)}_{a} + \underbrace{uB_i^n(u)}_{b}$$

$$a = (1-u)B_i^n(u) = \binom{n}{i} u^i (1-u)^{n+1-i}$$

$$= \frac{\binom{n}{i}}{\binom{n+1}{i}} \binom{n+1}{i} u^i (1-u)^{n+1-i} = \frac{\binom{n}{i}}{\binom{n+1}{i}} B_i^{n+1}(u) = \frac{n-i+1}{n+1} B_i^{n+1}(u)$$

$$b = uB_i^n(u) = \binom{n}{i} u^{i+1} (1-u)^{n-i} = \binom{n}{i} u^{i+1} (1-u)^{n+1-(i+1)}$$

$$= \frac{\binom{n}{i}}{\binom{n+1}{i+1}} \binom{n+1}{i+1} u^{i+1} (1-u)^{n+1-(i+1)} = \frac{i+1}{n+1} B_{i+1}^{n+1}(u)$$

Tak więc $$B_i^n = \frac{n-i+1}{n+1} B_i^{n+1}(u) + \frac{i+1}{n+1} B_{i+1}^{n+1}(u)$$