Exercise 3.1-2:

$Let\ r = \frac{(n+a)^b}{n^b} = (1 + \frac{a}{n})^b$

$\therefore When\ a \geq 0, 1 \leq r \leq (1+a)^b$

$\therefore When\ a < 0, (1+a)^b \leq r \leq 1$

$\therefore \forall a, b \in \mathbb{R}, b > 0, \exists c_1, c_2 > 0, s.t.\ c_1 n^b \leq (n+a)^b \leq c_2 n^b$

$\therefore (n+a)^b = \Theta(n^b)$