

HW15-Alan Ho

OK to post

2) i) $x(n) = \frac{x(n-1) + 2x(n-2) + 3x(n-3) + 11x(n-4)}{x(n-1) + x(n-3)}$; $x(0)=1, x(1)=5$
 $x(2)=5, x(3)=2$

$x_1(n) = x(n); x_2(n) = x(n-2); x_3(n) = x(n-3); x_4(n) = x(n-4)$

$\therefore x_1(n) = \frac{x_1(n-1) + 2x_2(n-1) + 3x_3(n-1) + 11x_4(n-1)}{x_1(n-1) + x_3(n-3)}$

4) $u = \text{freq of } AA \quad v = \text{freq of } Aa \quad w = \text{freq of } aa$
 $p = u + \frac{v}{2} \quad q = w + \frac{v}{2}$

	AA	Aa	aa
AA	u^2	uv	wu
Aa	uv	v^2	wv
aa	uw	wv	w^2

	freq	AA	aA	aa
AA x AA	u^2	u^2	0	0
AA x Aa	$2uv$	wv	uv	0
AA x aa	$2uw$	0	$2uw$	0
Aa x AA	$2uv$	wv	uv	0
Aa x Aa	v^2	$v^2/4$	$v^2/2$	$v^2/4$
Aa x aa	$2wv$	0	wv	wv
aa x AA	$2uw$	0	$2uw$	0
aa x Aa	$2wv$	0	wv	wv
aa x aa	w^2	0	0	w^2

$$\sum AA = u^2 + 2uv + v^2/4$$

$$\sum Aa = \frac{v^2}{2} + 2uv + 2uv + 4uw$$

$$\sum aa = w^2 + 2wr + r^2/4$$

$$u_{n+1} = u_n^2 + u_n v_n + v_n^2/4$$

$$v_{n+1} = u_n v_n + 2u_n w_n + v_n w_n + v_n^2/2$$

$$w_{n+1} = w_n^2 + 2w_n v_n + v_n^2/4$$

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