$x_{n+1} = 4x_n - x_n^2$ $\qquad x_0 = 4\sin^2\theta$

Se conduce en $\qquad x_{n+1} = 4\sin^2(2^{n+1}\theta)$

$x_0 = 4\sin^2\theta$

$x_1 = 4x_0 - x_0^2 = 4(4\sin^2\theta) - 16\sin^4\theta = 16\sin^2\theta - 16\sin^4\theta = 16\sin^2\theta(1-\sin^2\theta) =$
$16\sin^2\theta\cos^2(\theta) = 16\left(\left(\frac{\sin(2\theta)}{2}\right)^2\right) = \frac{16}{4}\sin^2(2\theta) = 4\sin^2(2^{n+1}\theta)$

$x_2 = 4x_1 - x_1^2 = 4(4\sin^2(2\theta)) - (4\sin^2(2\theta))^2 = 16\sin^2(2\theta) - 16\sin^4(2\theta) =$
$16\sin^2(2\theta)(1-\sin^2(2\theta)) = 16\sin^2(2\theta)\cos^2(2\theta) = 16\left(\left(\frac{\sin(4\theta)}{2}\right)^2\right)$
$= \frac{16}{4}\sin^2(4\theta) = 4\sin^2(2^2\theta)$

$x_{n+1} = 4(4\sin^2(2^{n+1}\theta)) - (4\sin^2(2^{n+1}\theta))^2 = 16\sin^2(2^{n+1}\theta) - 16\sin^4(2^{n+1}\theta)$
$= 16\sin^2(2^{n+1}\theta)(1-\sin^2(2^{n+1}\theta)) = 16\sin^2(2^{n+1}\theta)\cos(2^{n+1}\theta)$
$= 16\left(\left(\frac{\sin(2^{n+1}\theta)}{2}\right)^2\right) = \frac{16}{4}\sin^2(2^{n+1}\theta) = 4\sin^2(2^{n+1}\theta)$

$x_{n+1} = 4x_n - 4x_n^2$ $\qquad x_0 = \sin^2\theta$

nduce a $x_{n+1} = \sin^2(2^{n+1}\theta)$

$= \sin^2\theta$

$= 4\sin^2\theta - 4\sin^4\theta = 4\sin^2\theta(1-\sin^2\theta) = 4\sin^2\theta\cos^2\theta$

$4\left(\left(\frac{\sin(2\theta)}{2}\right)^2\right) = \frac{4}{4}\sin^2(2\theta) = \sin^2(2\theta)$

$4\sin^2(2\theta) - 4\sin^4(2\theta) = 4\sin^2(2\theta)(1-\sin^2(2\theta)) = 4\sin^2(2\theta)\cos^2($

$\left(\left(\frac{\sin(4\theta)}{2}\right)^2\right) = \frac{4}{4}\sin^2(4\theta) = \sin^2(2^2\theta)$

En general

$$x_{n+1} = 4\sin^2(2^{n+1}\theta) - 4\sin^4(2^{n+1}\theta) = 4\sin^2(2^{n+1}\theta)\left(1 - \sin^2(2^{n+1}\theta)\right)$$
$$= 4\sin^2(2^{n+1}\theta)\cos^2(2^{n+1}\theta) = 4\left(\left(\frac{\sin(2^{n+1}\cdot 2\theta)}{2}\right)^2\right) = \frac{4}{4}\sin^2(2^{n+1}\theta)$$
$$= \sin^2(2^{n+1}\theta)$$