$$H_{n,r,m} = \left\lfloor \frac{F_{m-r}(F_{n-2} + F_r)}{F_m} \right\rfloor, -1 \leq r \leq m.$$

If m is even,

$$G_{n,r,m} = \begin{cases} H_{n,r,m} & \text{if } 0 \leq r \leq m,\ r \text{ even}, \\ H_{n-1,r+1,m} & \text{if } -1 \leq r \leq m-1,\ r \text{ odd}. \end{cases}$$

If m is odd,

$$G_{n,r,m} = \begin{cases} G_{n,r,m-1} & \text{if } r \text{ is even}, \\ G_{n,r,m+1} & \text{if } r \text{ is odd}. \end{cases}$$

Then

$$W_{n,r,m} = G_{n,r-2,m} + G_{n,r-1,m} - G_{n,r,m}$$

for $1 \leq r \leq m, n \geq 2, m \geq 2$.

Finally, $x_r = (-1)^{n+r-1} W_{n,r,m}, 1 \leq r \leq m$.