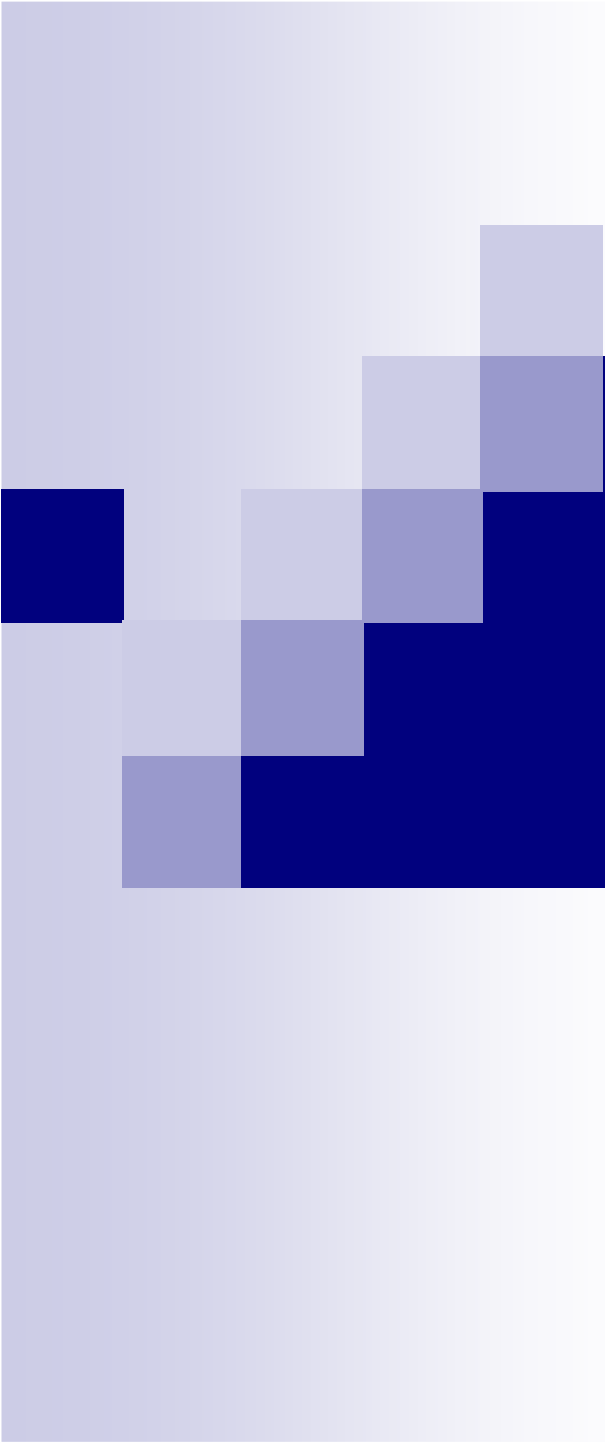




Taula de coeficients de Racah

TABLAS DE COEFICIENTES DE RACAH

En las páginas siguientes se presentan una tablas reducidas de coeficientes de Racah. De acuerdo con las relaciones de simetría

$$W(a b c d; e f) = W(b a d c; e f) = W(c d a b; e f) = W(d c b a; e f)$$

podemos convertir el coeficiente dado en otro en que el menor de los cuatro primeros argumentos se encuentre en primera posición. De acuerdo con esto se han calculado los coeficientes para b, c y d mayor o igual a

Las tablas están organizadas en forma de matrices, con filas y columnas representadas por los posibles valores de e y f , respectivamente. Esta matriz, multiplicada por $((2e+1)(2f+1))^{1/2}$ es unitaria.

En las tablas se sobrentiende una raíz cuadrada para cada coeficiente que, evidentemente, no afecta al signo.

El rango de variación de los cuatro primeros argumentos es $1/2, 1, 3/2, 2$ y $5/2$. Los valores de e y f son todos los permitidos por las relaciones triangulares que deben satisfacerse.

Caso de un argumento nulo:

$$W(0 b c d; e f) = \delta_{cf} \delta_{be} / \sqrt{(2e+1)(2f+1)}$$

$$W(a 0 c d; e f) = \delta_{df} \delta_{ae} / \sqrt{(2e+1)(2f+1)}$$

$$W(a b 0 d; e f) = \delta_{af} \delta_{ed} / \sqrt{(2e+1)(2f+1)}$$

$$W(a b c 0; e f) = \delta_{bf} \delta_{ce} / \sqrt{(2e+1)(2f+1)}$$

COEFICIENTES DE RACAH

1

- 20 $\bar{a} = 1/2$

$W(1/2 \ 1/2 \ 1/2 \ 1/2; e \ f)$ $e = \begin{matrix} 0 & 1 \\ f=0 & -1/4 & 1/4 \\ f=1 & 1/4 & 1/36 \end{matrix}$	$W(1/2 \ 1/2 \ 2 \ 1; e \ f)$ $e = \begin{matrix} 1 \\ f=3/2 & 1/12 \end{matrix}$	$W(1/2 \ 1 \ 1 \ 3/2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 \\ f=1/2 & -1 & 5 \\ & 9 & 72 \\ f=3/2 & 5 & 1 \\ & 72 & 36 \end{matrix}$
$W(1/2 \ 1/2 \ 1/2 \ 3/2; e \ f)$ $e = \begin{matrix} 1 \\ f=1 & 1/9 \end{matrix}$	$W(1/2 \ 1/2 \ 2 \ 2; e \ f)$ $e = \begin{matrix} 0 & 1 \\ f=3/2 & -1 & 1 \\ & 10 & 20 \\ f=5/2 & 1 & 1 \\ & 10 & 45 \end{matrix}$	$W(1/2 \ 1 \ 1 \ 5/2; e \ f)$ $e = \begin{matrix} 3/2 \\ f=3/2 & 1 \\ & 16 \end{matrix}$
$W(1/2 \ 1/2 \ 1 \ 1; e \ f)$ $e = \begin{matrix} 0 & 1 \\ f=1/2 & -1 & 1 \\ & 6 & 9 \\ f=3/2 & 1 & 1 \\ & 6 & 36 \end{matrix}$	$W(1/2 \ 1/2 \ 5/2 \ 3/2; e \ f)$ $e = \begin{matrix} 1 \\ f=2 & 1 \\ & 15 \end{matrix}$	$W(1/2 \ 1 \ 3/2 \ 1; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 \\ f=1 & -1 & 5 \\ & 36 & 72 \\ f=2 & 1 & 1 \\ & 12 & 120 \end{matrix}$
$W(1/2 \ 1/2 \ 1 \ 2; e \ f)$ $e = \begin{matrix} 1 \\ f=3/2 & 1 \\ & 12 \end{matrix}$	$W(1/2 \ 1/2 \ 5/2 \ 5/2; e \ f)$ $e = \begin{matrix} 0 & 1 \\ f=2 & -1 & 7 \\ & 12 & 180 \\ f=3 & 1 & 5 \\ & 12 & 252 \end{matrix}$	$W(1/2 \ 1 \ 3/2 \ 2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 \\ f=1 & -1 & 1 \\ & 12 & 24 \\ f=2 & 1 & 1 \\ & 20 & 40 \end{matrix}$
$W(1/2 \ 1/2 \ 3/2 \ 1/2; e \ f)$ $e = \begin{matrix} 1 \\ f=1 & 1 \\ & 9 \end{matrix}$	$W(1/2 \ 1 \ 1/2 \ 1; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 \\ f=0 & -1 & 1 \\ & 6 & 6 \\ f=1 & 1 & 1 \\ & 9 & 36 \end{matrix}$	$W(1/2 \ 1 \ 2 \ 1/2; e \ f)$ $e = \begin{matrix} 3/2 \\ f=3/2 & 1 \\ & 16 \end{matrix}$
$W(1/2 \ 1/2 \ 3/2 \ 3/2; e \ f)$ $e = \begin{matrix} 0 & 1 \\ f=1 & -1 & 5 \\ & 8 & 72 \\ f=2 & 1 & 1 \\ & 8 & 40 \end{matrix}$	$W(1/2 \ 1 \ 1/2 \ 2; e \ f)$ $e = \begin{matrix} 3/2 \\ f=1 & 1 \\ & 12 \end{matrix}$	$W(1/2 \ 1 \ 2 \ 3/2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 \\ f=3/2 & -1 & 1 \\ & 40 & 20 \\ 5/2 & 1 & 1 \\ & 15 & 120 \end{matrix}$
$W(1/2 \ 1/2 \ 3/2 \ 5/2; e \ f)$ $e = \begin{matrix} 1 \\ f=2 & 1 \\ & 15 \end{matrix}$	$W(1/2 \ 1 \ 1 \ 1/2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 \\ f=1/2 & -1 & 1 \\ & 36 & 9 \\ f=3/2 & 1 & 1 \\ & 9 & 144 \end{matrix}$	

COEFICIENTES DE RACA - 2 -

$W(1/2 \ 1 \ 2 \ 5/2; e \ f)$ $e = \frac{1}{2} \ \frac{3}{2}$ $f=3/2 \ -1 \ 7$ $f=5/2 \ 15 \ 240$ $f=5/2 \ 7 \ 1$ $180 \ 45$	$W(1/2 \ 3/2 \ 1 \ 2; e \ f)$ $e = 1 \ 2$ $f=1/2 \ -1 \ 1$ $12 \ 20$ $f=3/2 \ 1 \ 1$ $24 \ 40$	$W(1/2 \ 3/2 \ 5/2 \ 1/2; e \ f)$ $e = 2$ $f=2 \ 1$ 25
$W(1/2 \ 1 \ 5/2 \ 1; e \ f)$ $e = \frac{3}{2}$ $f=2 \ 1$ 20	$W(1/2 \ 3/2 \ 3/2 \ 1/2; e \ f)$ $e = 1 \ 2$ $f=1 \ -1 \ 1$ $144 \ 16$ $f=2 \ 1 \ 1$ $16 \ 400$	$W(1/2 \ 3/2 \ 5/2 \ 3/2; e \ f)$ $e = 1 \ 2$ $f=2 \ -1 \ 7$ $120 \ 200$ $f=3 \ 1 \ 1$ $24 \ 280$
$W(1/2 \ 1 \ 5/2 \ 2; e \ f)$ $e = \frac{1}{2} \ \frac{3}{2}$ $f=2 \ -1 \ 7$ $45 \ 180$ $f=3 \ 1 \ 1$ $18 \ 126$	$W(1/2 \ 3/2 \ 3/2 \ 3/2; e \ f)$ $e = 1 \ 2$ $f=1 \ -1 \ 1$ $36 \ 20$ $f=2 \ 1 \ 1$ $20 \ 100$	$W(1/2 \ 3/2 \ 5/2 \ 5/2; e \ f)$ $e = 1 \ 2$ $f=2 \ -1 \ 2$ $45 \ 75$ $f=3 \ 2 \ 1$ $63 \ 105$
$W(1/2 \ 3/2 \ 1/2 \ 1/2; e \ f)$ $e = 1$ $f=1 \ 1$ 9	$W(1/2 \ 3/2 \ 3/2 \ 5/2; e \ f)$ $e = 1 \ 2$ $f=1 \ -1 \ 7$ $16 \ 240$ $f=2 \ 7 \ 9$ $240 \ 400$	$W(1/2 \ 2 \ 1/2 \ 1; e \ f)$ $e = \frac{3}{2}$ $f=1 \ 1$ 12
$W(1/2 \ 3/2 \ 1/2 \ 3/2; e \ f)$ $e = 1 \ 2$ $f=0 \ -1 \ 1$ $8 \ 8$ $f=1 \ 5 \ 1$ $72 \ 40$	$W(1/2 \ 3/2 \ 2 \ 1; e \ f)$ $e = 1 \ 2$ $f=3/2 \ -1 \ 9$ $120 \ 200$ $f=5/2 \ 1 \ 1$ $20 \ 300$	$W(1/2 \ 2 \ 1/2 \ 2; e \ f)$ $e = \frac{3}{2} \ \frac{5}{2}$ $f=0 \ -1 \ 1$ $10 \ 10$ $f=1 \ 1 \ 1$ $20 \ 45$
$W(1/2 \ 3/2 \ 1/2 \ 5/2; e \ f)$ $e = 2$ $f=1 \ 1$ 15	$W(1/2 \ 3/2 \ 2 \ 2; e \ f)$ $e = 1 \ 2$ $f=3/2 \ -1 \ 7$ $40 \ 200$ $f=5/2 \ 7 \ 1$ $180 \ 100$	$W(1/2 \ 2 \ 1 \ 1/2; e \ f)$ $e = \frac{3}{2}$ $f=3/2 \ 1$ 16
$W(1/2 \ 3/2 \ 1 \ 1; e \ f)$ $e = 1 \ 2$ $f=1/2 \ -1 \ 1$ $36 \ 12$ $f=3/2 \ 5 \ 1$ $72 \ 120$		

COEFICIENTES DE RACA - 3 -

$W(1/2 \ 2 \ 1 \ 3/2; e \ f)$ $e = \frac{3}{2} \ \frac{5}{2}$ $f=1/2 \ -1 \ 1$ $40 \ 15$ $f=3/2 \ 1 \ 1$ $20 \ 120$	$W(1/2 \ 2 \ 2 \ 5/2; e \ f)$ $e = \frac{3}{2} \ \frac{5}{2}$ $f=3/2 \ -9 \ 2$ $400 \ 75$ $f=5/2 \ 2 \ 1$ $75 \ 100$	$W(1/2 \ 5/2 \ 1 \ 2; e \ f)$ $e = 2 \ 3$ $f=1/2 \ -1 \ 1$ $45 \ 18$ $f=3/2 \ 7 \ 1$ $180 \ 126$
$W(1/2 \ 2 \ 1 \ 5/2; e \ f)$ $e = \frac{3}{2} \ \frac{5}{2}$ $f=1/2 \ -1 \ 7$ $15 \ 180$ $f=3/2 \ 7 \ 1$ $240 \ 45$	$W(1/2 \ 2 \ 5/2 \ 1; e \ f)$ $e = \frac{3}{2} \ \frac{5}{2}$ $f=2 \ -1 \ 7$ $300 \ 225$ $f=3 \ 1 \ 1$ $30 \ 630$	$W(1/2 \ 5/2 \ 3/2 \ 1/2; e \ f)$ $e = 2$ $f=2 \ 1$ 25
$W(1/2 \ 2 \ 3/2 \ 1; e \ f)$ $e = \frac{3}{2} \ \frac{5}{2}$ $f=1 \ -1 \ 1$ $120 \ 20$ $f=2 \ 9 \ 1$ $200 \ 300$	$W(1/2 \ 2 \ 5/2 \ 2; e \ f)$ $e = \frac{3}{2} \ \frac{5}{2}$ $f=2 \ -1 \ 2$ $100 \ 75$ $f=3 \ 1 \ 1$ $35 \ 210$	$W(1/2 \ 5/2 \ 3/2 \ 3/2; e \ f)$ $e = 2 \ 3$ $f=1 \ -1 \ 1$ $120 \ 24$ $f=2 \ 7 \ 1$ $200 \ 280$
$W(1/2 \ 2 \ 3/2 \ 2; e \ f)$ $e = \frac{3}{2} \ \frac{5}{2}$ $f=1 \ -1 \ 7$ $40 \ 180$ $f=2 \ 7 \ 1$ $200 \ 100$	$W(1/2 \ 5/2 \ 1/2 \ 3/2; e \ f)$ $e = 2$ $f=1 \ 1$ 15	$W(1/2 \ 5/2 \ 2 \ 1; e \ f)$ $e = 2 \ 3$ $f=1 \ -1 \ 2$ $45 \ 63$ $f=2 \ 2 \ 1$ $75 \ 105$
$W(1/2 \ 2 \ 2 \ 1/2; e \ f)$ $e = \frac{3}{2} \ \frac{5}{2}$ $f=3/2 \ -1 \ 1$ $400 \ 25$ $f=5/2 \ 1 \ 1$ $25 \ 900$	$W(1/2 \ 5/2 \ 1/2 \ 5/2; e \ f)$ $e = 2 \ 3$ $f=0 \ -1 \ 1$ $12 \ 12$ $f=1 \ 7 \ 5$ $180 \ 252$	$W(1/2 \ 5/2 \ 2 \ 2; e \ f)$ $e = 2 \ 3$ $f=3/2 \ -1 \ 1$ $300 \ 30$ $f=5/2 \ 7 \ 1$ $225 \ 630$
$W(1/2 \ 2 \ 2 \ 3/2; e \ f)$ $e = \frac{3}{2} \ \frac{5}{2}$ $f=3/2 \ -1 \ 7$ $100 \ 200$ $f=5/2 \ 7 \ 1$ $200 \ 225$	$W(1/2 \ 5/2 \ 1 \ 1; e \ f)$ $e = 2$ $f=3/2 \ 1$ 20	

COEFICIENTES DE RACAH - 4 -

$a = 1/2, 1$

$W(1/2 \ 5/2 \ 5/2 \ 1/2; e \ f)$ $e = \begin{matrix} 2 & 3 \\ f=2 & -1 & 1 \\ & 900 & 36 \\ f=3 & 1 & 1 \\ & 36 & 1764 \end{matrix}$	$W(1/2 \ 5/2 \ 5/2 \ 3/2; e \ f)$ $e = \begin{matrix} 2 & 3 \\ f=2 & -1 & 8 \\ & 225 & 315 \\ f=3 & 8 & 1 \\ & 315 & 441 \end{matrix}$	$W(1/2 \ 5/2 \ 5/2 \ 5/2; e \ f)$ $e = \begin{matrix} 2 & 3 \\ f=2 & -1 & 3 \\ & 100 & 140 \\ f=3 & 3 & 1 \\ & 140 & 196 \end{matrix}$
$W(1 \ 1 \ 1 \ 1; e \ f)$ $e = \begin{matrix} 0 & 1 & 2 \\ f=0 & 1 & -1 & 1 \\ & 9 & 9 & 9 \\ f=1 & -1 & 1 & 1 \\ & 9 & 36 & 36 \\ f=2 & 1 & 1 & 1 \\ & 9 & 36 & 900 \end{matrix}$	$W(1 \ 1 \ 2 \ 1; e \ f)$ $e = \begin{matrix} 1 & 2 \\ f=1 & -1 & 1 \\ & 36 & 20 \\ f=2 & 1 & 1 \\ & 20 & 100 \end{matrix}$	$W(1 \ 3/2 \ 1 \ 3/2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 & 5/2 \\ f=0 & 1 & -1 & 1 \\ & 12 & 12 & 12 \\ f=1 & -5 & 1 & 1 \\ & 72 & 90 & 40 \\ f=2 & 1 & 2 & 1 \\ & 24 & 75 & 600 \end{matrix}$
$W(1 \ 1 \ 1 \ 2; e \ f)$ $e = \begin{matrix} 1 & 2 \\ f=1 & -1 & 1 \\ & 36 & 20 \\ f=2 & 1 & 1 \\ & 20 & 100 \end{matrix}$	$W(1 \ 1 \ 2 \ 2; e \ f)$ $e = \begin{matrix} 0 & 1 & 2 \\ f=1 & 1 & -1 & 7 \\ & 15 & 20 & 300 \\ f=2 & -1 & 1 & 7 \\ & 15 & 180 & 300 \\ f=3 & 1 & 1 & 1 \\ & 15 & 45 & 525 \end{matrix}$	$W(1 \ 3/2 \ 1 \ 5/2; e \ f)$ $e = \begin{matrix} 3/2 & 5/2 \\ f=1 & -1 & 7 \\ & 40 & 180 \\ f=2 & 7 & 1 \\ & 200 & 100 \end{matrix}$
$W(1 \ 1 \ 3/2 \ 3/2; e \ f)$ $e = \begin{matrix} 0 & 1 & 2 \\ f=1/2 & 1 & -5 & 1 \\ & 12 & 72 & 24 \\ f=3/2 & -1 & 1 & 2 \\ & 12 & 90 & 75 \\ f=5/2 & 1 & 1 & 1 \\ & 12 & 40 & 600 \end{matrix}$	$W(1 \ 1 \ 5/2 \ 3/2; e \ f)$ $e = \begin{matrix} 1 & 2 \\ f=3/2 & -1 & 7 \\ & 40 & 200 \\ f=5/2 & 7 & 1 \\ & 180 & 100 \end{matrix}$	$W(1 \ 3/2 \ 3/2 \ 1; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 & 5/2 \\ f=1/2 & 1 & -1 & 1 \\ & 144 & 36 & 16 \\ f=3/2 & -1 & 121 & 1 \\ & 36 & 3600 & 100 \\ f=5/2 & 1 & 1 & 1 \\ & 16 & 100 & 3600 \end{matrix}$
$W(1 \ 1 \ 3/2 \ 5/2; e \ f)$ $e = \begin{matrix} 1 & 2 \\ f=1/2 & -1 & 7 \\ & 40 & 200 \\ f=5/2 & 7 & 1 \\ & 180 & 100 \end{matrix}$	$W(1 \ 1 \ 5/2 \ 5/2; e \ f)$ $e = \begin{matrix} 0 & 1 & 2 \\ f=3/2 & 1 & -7 & 7 \\ & 18 & 180 & 450 \\ f=5/2 & -1 & 1 & 32 \\ & 10 & 315 & 1575 \\ f=7/2 & 1 & 5 & 1 \\ & 18 & 252 & 504 \end{matrix}$	$W(1 \ 3/2 \ 3/2 \ 2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 & 5/2 \\ f=1/2 & 1 & -1 & 7 \\ & 16 & 20 & 240 \\ f=3/2 & -1 & 1 & 7 \\ & 20 & 400 & 300 \\ f=5/2 & 7 & 7 & 1 \\ & 240 & 300 & 400 \end{matrix}$

COEFICIENTES DE RACAH - 5 -

$a = 1$

$W(1 \ 3/2 \ 2 \ 3/2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 & 5/2 \\ f=1 & 1 & -2 & 7 \\ & 120 & 75 & 200 \\ f=2 & -1 & 1 & 7 \\ & 40 & 50 & 600 \\ f=3 & 1 & 1 & 1 \\ & 20 & 100 & 2100 \end{matrix}$	$W(1 \ 2 \ 1 \ 2; e \ f)$ $e = \begin{matrix} 1 & 2 & 3 \\ f=0 & 1 & -1 & 1 \\ & 15 & 15 & 15 \\ f=1 & -1 & 1 & 1 \\ & 20 & 180 & 45 \\ f=2 & 7 & 7 & 1 \\ & 300 & 300 & 525 \end{matrix}$	$W(1 \ 2 \ 2 \ 2; e \ f)$ $e = \begin{matrix} 1 & 2 & 3 \\ f=1 & 1 & -7 & 2 \\ & 100 & 300 & 75 \\ f=2 & -7 & 1 & 2 \\ & 300 & 100 & 175 \\ f=3 & 2 & 2 & 1 \\ & 75 & 175 & 1225 \end{matrix}$
$W(1 \ 3/2 \ 2 \ 5/2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 & 5/2 \\ f=1 & 1 & -7 & 7 \\ & 20 & 200 & 450 \\ f=2 & -7 & 1 & 1 \\ & 180 & 1800 & 50 \\ f=3 & 1 & 32 & 1 \\ & 45 & 1575 & 350 \end{matrix}$	$W(1 \ 2 \ 3/2 \ 3/2; e \ f)$ $e = \begin{matrix} 1 & 2 & 3 \\ f=1/2 & 1 & -1 & 1 \\ & 120 & 40 & 20 \\ f=3/2 & -2 & 1 & 1 \\ & 75 & 50 & 100 \\ f=5/2 & 7 & 7 & 1 \\ & 200 & 600 & 2100 \end{matrix}$	$W(1 \ 2 \ 5/2 \ 3/2; e \ f)$ $e = \begin{matrix} 1 & 2 & 3 \\ f=3/2 & 1 & -7 & 2 \\ & 600 & 600 & 75 \\ f=5/2 & -1 & 121 & 64 \\ & 100 & 6300 & 11025 \\ f=7/2 & 1 & 1 & 1 \\ & 30 & 210 & 5880 \end{matrix}$
$W(1 \ 3/2 \ 5/2 \ 1; e \ f)$ $e = \begin{matrix} 3/2 & 5/2 \\ f=3/2 & -1 & 7 \\ & 100 & 200 \\ f=5/2 & 7 & 1 \\ & 200 & 225 \end{matrix}$	$W(1 \ 2 \ 3/2 \ 5/2; e \ f)$ $e = \begin{matrix} 1 & 2 & 3 \\ f=1/2 & 1 & -7 & 1 \\ & 20 & 180 & 45 \\ f=3/2 & -7 & 1 & 32 \\ & 200 & 1800 & 1575 \\ f=5/2 & 7 & 1 & 1 \\ & 450 & 50 & 350 \end{matrix}$	$W(1 \ 2 \ 5/2 \ 5/2; e \ f)$ $e = \begin{matrix} 1 & 2 & 3 \\ f=3/2 & 1 & -1 & 3 \\ & 100 & 50 & 175 \\ f=5/2 & -32 & 1 & 27 \\ & 1575 & 175 & 2450 \\ f=7/2 & 3 & 3 & 1 \\ & 140 & 280 & 980 \end{matrix}$
$W(1 \ 3/2 \ 5/2 \ 2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 & 5/2 \\ f=3/2 & 1 & -7 & 7 \\ & 120 & 300 & 300 \\ f=5/2 & -1 & 169 & 2 \\ & 45 & 12600 & 175 \\ f=7/2 & 1 & 1 & 1 \\ & 24 & 105 & 1680 \end{matrix}$	$W(1 \ 2 \ 2 \ 1; e \ f)$ $e = \begin{matrix} 1 & 2 & 3 \\ f=1 & 1 & -1 & 1 \\ & 900 & 100 & 25 \\ f=2 & -1 & 1 & 1 \\ & 100 & 36 & 225 \\ f=3 & 1 & 1 & 1 \\ & 25 & 225 & 11025 \end{matrix}$	$W(1 \ 5/2 \ 1 \ 3/2; e \ f)$ $e = \begin{matrix} 3/2 & 5/2 \\ f=1 & -1 & 7 \\ & 40 & 180 \\ f=2 & 7 & 1 \\ & 200 & 100 \end{matrix}$
$W(1 \ 2 \ 1 \ 1; e \ f)$ $e = \begin{matrix} 1 & 2 \\ f=1 & -1 & 1 \\ & 36 & 20 \\ f=2 & 1 & 1 \\ & 20 & 100 \end{matrix}$		$W(1 \ 5/2 \ 1 \ 5/2; e \ f)$ $e = \begin{matrix} 3/2 & 5/2 & 7/2 \\ f=0 & 1 & -1 & 1 \\ & 18 & 18 & 18 \\ f=1 & -7 & 1 & 5 \\ & 180 & 315 & 252 \\ f=2 & 7 & 32 & 1 \\ & 450 & 1575 & 504 \end{matrix}$

$a = 1, 3/2$

COEFICIENTES DE RACAH - 6 -

$W(1 \ 5/2 \ 3/2 \ 1; e \ f)$ $e = \begin{matrix} 3/2 & 5/2 \\ f=3/2 & -1 & 7 \\ & 100 & 200 \\ f=5/2 & 7 & 1 \\ & 200 & 225 \end{matrix}$	$W(1 \ 5/2 \ 2 \ 3/2; e \ f)$ $e = \begin{matrix} 3/2 & 5/2 & 7/2 \\ f=1 & 1 & -1 & 1 \\ & 600 & 100 & 30 \\ f=2 & -7 & 121 & 1 \\ & 600 & 6300 & 210 \\ f=3 & 2 & 64 & 1 \\ & 75 & 11025 & 5880 \end{matrix}$	$W(1 \ 5/2 \ 5/2 \ 1; e \ f)$ $e = \begin{matrix} 3/2 & 5/2 & 7/2 \\ f=3/2 & 1 & -1 & 1 \\ & 3600 & 225 & 36 \\ f=5/2 & -1 & 961 & 1 \\ & 225 & 44100 & 441 \\ f=7/2 & 1 & 1 & 1 \\ & 36 & 441 & 28224 \end{matrix}$
$W(1 \ 5/2 \ 3/2 \ 2; e \ f)$ $e = \begin{matrix} 3/2 & 5/2 & 7/2 \\ f=1/2 & 1 & -1 & 1 \\ & 120 & 45 & 24 \\ f=3/2 & -7 & 169 & 1 \\ & 300 & 12600 & 105 \\ f=5/2 & 7 & 2 & 1 \\ & 300 & 175 & 1680 \end{matrix}$	$W(1 \ 5/2 \ 2 \ 5/2; e \ f)$ $e = \begin{matrix} 3/2 & 5/2 & 7/2 \\ f=1 & 1 & -32 & 3 \\ & 100 & 1575 & 140 \\ f=2 & -1 & 1 & 3 \\ & 50 & 175 & 280 \\ f=3 & 3 & 27 & 1 \\ & 175 & 2450 & 980 \end{matrix}$	$W(1 \ 5/2 \ 5/2 \ 2; e \ f)$ $e = \begin{matrix} 3/2 & 5/2 & 7/2 \\ f=3/2 & 1 & -2 & 3 \\ & 400 & 175 & 140 \\ f=5/2 & -2 & 529 & 3 \\ & 175 & 44100 & 490 \\ f=7/2 & 3 & 3 & 1 \\ & 140 & 490 & 3136 \end{matrix}$
$W(3/2 \ 3/2 \ 3/2 \ 3/2; e \ f)$ $e = \begin{matrix} 0 & 1 & 2 & 3 \\ f=0 & -1 & 1 & -1 & 1 \\ & 16 & 16 & 16 & 16 \\ f=1 & 1 & -121 & 1 & 9 \\ & 16 & 3600 & 400 & 400 \\ f=2 & -1 & 1 & 9 & 1 \\ & 16 & 400 & 400 & 400 \\ f=3 & 1 & 9 & 1 & 1 \\ & 16 & 400 & 400 & 19600 \end{matrix}$	$W(3/2 \ 3/2 \ 2 \ 2; e \ f)$ $e = \begin{matrix} 0 & 1 & 2 & 3 \\ f=1/2 & -1 & 9 & -7 & 1 \\ & 20 & 200 & 200 & 50 \\ f=3/2 & 1 & -1 & 0 & 1 \\ & 20 & 50 & 50 & 50 \\ f=5/2 & -1 & 1 & 1 & 9 \\ & 20 & 1800 & 56 & 2450 \\ f=7/2 & 1 & 1 & 1 & 1 \\ & 20 & 50 & 350 & 9800 \end{matrix}$	
$W(3/2 \ 3/2 \ 3/2 \ 5/2; e \ f)$ $e = \begin{matrix} 1 & 2 & 3 \\ f=1 & 1 & -7 & 2 \\ & 100 & 300 & 75 \\ f=2 & -7 & 1 & 2 \\ & 300 & 100 & 175 \\ f=3 & 2 & 2 & 1 \\ & 75 & 175 & 1225 \end{matrix}$	$W(3/2 \ 3/2 \ 5/2 \ 3/2; e \ f)$ $e = \begin{matrix} 1 & 2 & 3 \\ f=1 & 1 & -7 & 2 \\ & 100 & 300 & 75 \\ f=2 & -7 & 1 & 2 \\ & 300 & 100 & 175 \\ f=3 & 2 & 2 & 1 \\ & 75 & 175 & 1225 \end{matrix}$	

$a = 3/2$

COEFICIENTES DE RACAH - 7 -

$W(3/2 \ 3/2 \ 5/2 \ 5/2; e \ f)$ $e = \begin{matrix} 0 & 1 & 2 & 3 \\ f=1 & -1 & 7 & -7 & 1 \\ & 24 & 200 & 300 & 100 \\ f=2 & 1 & -169 & -1 & 81 \\ & 24 & 12600 & 2100 & 4900 \\ f=3 & -1 & 1 & 121 & 81 \\ & 24 & 12600 & 8400 & 19600 \\ f=4 & 1 & 1 & 1 & 1 \\ & 24 & 56 & 336 & 7056 \end{matrix}$	$W(3/2 \ 2 \ 5/2 \ 2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 & 5/2 & 7/2 \\ f=1 & -1 & 7 & -1 & 1 \\ & 300 & 600 & 50 & 50 \\ f=2 & 1 & -1 & 1 & 27 \\ & 100 & 56 & 294 & 2450 \\ f=3 & -1 & 1 & 169 & 27 \\ & 50 & 175 & 14700 & 19600 \\ f=4 & 1 & 1 & 1 & 1 \\ & 30 & 105 & 980 & 35280 \end{matrix}$
$W(3/2 \ 2 \ 3/2 \ 2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 & 5/2 & 7/2 \\ f=0 & -1 & 1 & -1 & 1 \\ & 20 & 20 & 20 & 20 \\ f=1 & 9 & -1 & 1 & 1 \\ & 200 & 50 & 1800 & 50 \\ f=2 & -7 & 0 & 1 & 1 \\ & 200 & 56 & 350 \\ f=3 & 1 & 1 & 9 & 1 \\ & 50 & 50 & 2450 & 9800 \end{matrix}$	$W(3/2 \ 5/2 \ 3/2 \ 3/2; e \ f)$ $e = \begin{matrix} 1 & 2 & 3 \\ f=1 & 1 & -7 & 2 \\ & 100 & 300 & 75 \\ f=2 & -7 & 1 & 2 \\ & 300 & 100 & 175 \\ f=3 & 2 & 2 & 1 \\ & 75 & 175 & 1225 \end{matrix}$
$W(3/2 \ 2 \ 2 \ 3/2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 & 5/2 & 7/2 \\ f=1/2 & -1 & 1 & -9 & 1 \\ & 400 & 100 & 400 & 25 \\ f=3/2 & 1 & -9 & 1 & 1 \\ & 100 & 400 & 100 & 100 \\ f=5/2 & -9 & 1 & 2209 & 1 \\ & 400 & 100 & 176400 & 1225 \\ f=7/2 & 1 & 1 & 1 & 1 \\ & 25 & 100 & 1225 & 78400 \end{matrix}$	$W(3/2 \ 5/2 \ 2 \ 2; e \ f)$ $e = \begin{matrix} 1 & 2 & 3 & 4 \\ f=0 & -1 & 1 & -1 & 1 \\ & 24 & 24 & 24 & 24 \\ f=1 & 7 & -169 & 1 & 1 \\ & 200 & 12600 & 12600 & 56 \\ f=2 & -7 & -1 & 121 & 1 \\ & 300 & 2100 & 8400 & 336 \\ f=3 & 1 & 81 & 81 & 1 \\ & 100 & 4900 & 19600 & 7056 \end{matrix}$
$W(3/2 \ 2 \ 2 \ 5/2; e \ f)$ $e = \begin{matrix} 1/2 & 3/2 & 5/2 & 7/2 \\ f=1/2 & -1 & 7 & -2 & 3 \\ & 25 & 200 & 75 & 200 \\ f=3/2 & 7 & -1 & -1 & 3 \\ & 200 & 100 & 2100 & 175 \\ f=5/2 & -2 & -1 & 16 & 81 \\ & 15 & 2100 & 1225 & 19600 \\ f=7/2 & 3 & 3 & 81 & 1 \\ & 200 & 175 & 19600 & 4900 \end{matrix}$	$W(3/2 \ 5/2 \ 2 \ 2; e \ f)$ $e = \begin{matrix} 1 & 2 & 3 & 4 \\ f=1/2 & -1 & 1 & -1 & 1 \\ & 300 & 100 & 50 & 30 \\ f=3/2 & 7 & -1 & 1 & 1 \\ & 600 & 56 & 175 & 105 \\ f=5/2 & -1 & 1 & 169 & 1 \\ & 50 & 294 & 14700 & 980 \\ f=7/2 & 1 & 27 & 27 & 1 \\ & 50 & 2450 & 19600 & 35280 \end{matrix}$

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W(3/2 5/2 5/2 3/2 ; e f)				
e=	1	2	3	4
f=1	-1	1	-1	1
	3600	400	100	36
f=2	1	-2209	529	1
	400	176400	44100	196
f=3	-1	529	5041	1
	100	44100	705600	3136
f=4	1	1	1	1
	36	196	3136	254016

W(3/2 5/2 5/2 5/2 ; e f)				
e=	1	2	3	4
f=1	-1	2	-3	1
	225	175	175	63
f=2	2	-16	3	1
	175	1225	2450	98
f=3	-3	3	1	1
	175	2450	100	588
f=4	1	1	1	1
	63	98	588	15876

W(2 2 2 2 ; e f)					
e=	0	1	2	3	4
f=0	1	-1	1	-1	1
	25	25	25	25	25
f=1	-1	1	-1	0	4
	25	36	100		225
f=2	1	-1	-9	16	4
	25	100	4900	1225	1225
f=3	-1	0	16	1	1
	25		1225	196	4900
f=4	1	4	4	1	1
	25	225	1225	4900	396900

W(2 2 5/2 5/2 ; e f)					
e=	0	1	2	3	4
f=1/2	1	-7	2	-1	1
	30	225	75	50	90
f=3/2	-1	121	-1	-2	32
	30	6300	294	1225	2205
f=5/2	1	-1	-1	81	9
	30	175	294	9800	1960
f=7/2	-1	-1	289	121	8
	30	6300	29400	22050	19845
f=9/2	1	1	1	1	1
	30	63	294	3528	158760

W(2 5/2 2 5/2 ; e f)					
e=	1/2	3/2	5/2	7/2	9/2
f=0	1	-1	1	-1	1
	30	30	30	30	30
f=1	-7	121	-1	-1	1
	225	6300	175	6300	63
f=2	2	-1	-1	289	1
	75	294	294	29400	294
f=3	-1	-2	81	121	1
	50	1225	9800	22050	3528
f=4	1	32	9	8	1
	90	2205	1960	19845	158760

W(2 5/2 5/2 2 ; e f)					
e=	1/2	3/2	5/2	7/2	9/2
f=1/2	1	-1	1	-4	1
	900	225	100	225	36
f=3/2	-1	2209	-16	121	4
	225	176400	1225	44100	441
f=5/2	1	-16	1	1	1
	100	1225	3600	100	784
f=7/2	-4	121	1	289	1
	225	44100	100	129600	15876
f=9/2	1	4	1	1	1
	36	441	784	15876	1587600

W(5/2 5/2 5/2 5/2 ; e f)						
e=	0	1	2	3	4	5
f=0	-1	1	-1	1	-1	1
	36	36	36	36	36	36
f=1	1	-961	529	-121	-1	25
	36	44100	44100	44100	1764	1764
f=2	-1	529	-1	-841	1	25
	36	44100	3600	176400	144	7056
f=3	1	-121	-841	6241	361	25
	36	44100	176400	1587600	63504	63504
f=4	-1	-1	1	361	1	1
	36	1764	144	63504	1296	63504
f=5	1	25	25	25	1	1
	36	1764	7056	63504	63504	7683984