

In[15]:= **f[x_, y_] := PolynomialMod[Expand[x³ + x - y² + 2], 5]**

In[9]:= **g[a_, b_] := a + b $\sqrt{2}$**

In[10]:= **u = Flatten[Table[g[a, b], {a, 0, 4}, {b, 0, 4}]]**

Out[10]= $\{0, \sqrt{2}, 2\sqrt{2}, 3\sqrt{2}, 4\sqrt{2}, 1, 1 + \sqrt{2}, 1 + 2\sqrt{2}, 1 + 3\sqrt{2}, 1 + 4\sqrt{2}, 2, 2 + \sqrt{2}, 2 + 2\sqrt{2}, 2 + 3\sqrt{2}, 2 + 4\sqrt{2}, 3, 3 + \sqrt{2}, 3 + 2\sqrt{2}, 3 + 3\sqrt{2}, 3 + 4\sqrt{2}, 4, 4 + \sqrt{2}, 4 + 2\sqrt{2}, 4 + 3\sqrt{2}, 4 + 4\sqrt{2}\}$

In[16]:= **v = Flatten[Table[{x, y, Factor[f[x, y]]}, {x, u}, {y, u}], 1] // TableForm**

Out[16]/TableForm=

0	0	2
0	$\sqrt{2}$	0
0	$2\sqrt{2}$	4
0	$3\sqrt{2}$	4
0	$4\sqrt{2}$	0
0	1	1
0	$1 + \sqrt{2}$	$4 + 3\sqrt{2}$
0	$1 + 2\sqrt{2}$	$3 + \sqrt{2}$
0	$1 + 3\sqrt{2}$	$3 + 4\sqrt{2}$
0	$1 + 4\sqrt{2}$	$2(2 + \sqrt{2})$
0	2	3
0	$2 + \sqrt{2}$	$1 + \sqrt{2}$
0	$2 + 2\sqrt{2}$	$2\sqrt{2}$
0	$2 + 3\sqrt{2}$	$3\sqrt{2}$
0	$2 + 4\sqrt{2}$	$1 + 4\sqrt{2}$
0	3	3
0	$3 + \sqrt{2}$	$1 + 4\sqrt{2}$
0	$3 + 2\sqrt{2}$	$3\sqrt{2}$
0	$3 + 3\sqrt{2}$	$2\sqrt{2}$
0	$3 + 4\sqrt{2}$	$1 + \sqrt{2}$
0	4	1
0	$4 + \sqrt{2}$	$2(2 + \sqrt{2})$
0	$4 + 2\sqrt{2}$	$3 + 4\sqrt{2}$
0	$4 + 3\sqrt{2}$	$3 + \sqrt{2}$
0	$4 + 4\sqrt{2}$	$4 + 3\sqrt{2}$
$\sqrt{2}$	0	$2 + 3\sqrt{2}$
$\sqrt{2}$	$\sqrt{2}$	$3\sqrt{2}$
$\sqrt{2}$	$2\sqrt{2}$	$4 + 3\sqrt{2}$
$\sqrt{2}$	$3\sqrt{2}$	$4 + 3\sqrt{2}$
$\sqrt{2}$	$4\sqrt{2}$	$3\sqrt{2}$
$\sqrt{2}$	1	$1 + 3\sqrt{2}$
$\sqrt{2}$	$1 + \sqrt{2}$	$4 + \sqrt{2}$
$\sqrt{2}$	$1 + 2\sqrt{2}$	$3 + 4\sqrt{2}$
$\sqrt{2}$	$1 + 3\sqrt{2}$	$3 + 2\sqrt{2}$

$\sqrt{2}$	$1 + 4\sqrt{2}$	4
$\sqrt{2}$	2	$3(1 + \sqrt{2})$
$\sqrt{2}$	$2 + \sqrt{2}$	$1 + 4\sqrt{2}$
$\sqrt{2}$	$2 + 2\sqrt{2}$	0
$\sqrt{2}$	$2 + 3\sqrt{2}$	$\sqrt{2}$
$\sqrt{2}$	$2 + 4\sqrt{2}$	$1 + 2\sqrt{2}$
$\sqrt{2}$	3	$3(1 + \sqrt{2})$
$\sqrt{2}$	$3 + \sqrt{2}$	$1 + 2\sqrt{2}$
$\sqrt{2}$	$3 + 2\sqrt{2}$	$\sqrt{2}$
$\sqrt{2}$	$3 + 3\sqrt{2}$	0
$\sqrt{2}$	$3 + 4\sqrt{2}$	$1 + 4\sqrt{2}$
$\sqrt{2}$	4	$1 + 3\sqrt{2}$
$\sqrt{2}$	$4 + \sqrt{2}$	4
$\sqrt{2}$	$4 + 2\sqrt{2}$	$3 + 2\sqrt{2}$
$\sqrt{2}$	$4 + 3\sqrt{2}$	$3 + 4\sqrt{2}$
$\sqrt{2}$	$4 + 4\sqrt{2}$	$4 + \sqrt{2}$
$2\sqrt{2}$	0	$2 + 3\sqrt{2}$
$2\sqrt{2}$	$\sqrt{2}$	$3\sqrt{2}$
$2\sqrt{2}$	$2\sqrt{2}$	$4 + 3\sqrt{2}$
$2\sqrt{2}$	$3\sqrt{2}$	$4 + 3\sqrt{2}$
$2\sqrt{2}$	$4\sqrt{2}$	$3\sqrt{2}$
$2\sqrt{2}$	1	$1 + 3\sqrt{2}$
$2\sqrt{2}$	$1 + \sqrt{2}$	$4 + \sqrt{2}$
$2\sqrt{2}$	$1 + 2\sqrt{2}$	$3 + 4\sqrt{2}$
$2\sqrt{2}$	$1 + 3\sqrt{2}$	$3 + 2\sqrt{2}$
$2\sqrt{2}$	$1 + 4\sqrt{2}$	4
$2\sqrt{2}$	2	$3(1 + \sqrt{2})$
$2\sqrt{2}$	$2 + \sqrt{2}$	$1 + 4\sqrt{2}$
$2\sqrt{2}$	$2 + 2\sqrt{2}$	0
$2\sqrt{2}$	$2 + 3\sqrt{2}$	$\sqrt{2}$
$2\sqrt{2}$	$2 + 4\sqrt{2}$	$1 + 2\sqrt{2}$
$2\sqrt{2}$	3	$3(1 + \sqrt{2})$
$2\sqrt{2}$	$3 + \sqrt{2}$	$1 + 2\sqrt{2}$
$2\sqrt{2}$	$3 + 2\sqrt{2}$	$\sqrt{2}$
$2\sqrt{2}$	$3 + 3\sqrt{2}$	0
$2\sqrt{2}$	$3 + 4\sqrt{2}$	$1 + 4\sqrt{2}$
$2\sqrt{2}$	4	$1 + 3\sqrt{2}$
$2\sqrt{2}$	$4 + \sqrt{2}$	4
$2\sqrt{2}$	$4 + 2\sqrt{2}$	$3 + 2\sqrt{2}$
$2\sqrt{2}$	$4 + 3\sqrt{2}$	$3 + 4\sqrt{2}$
$2\sqrt{2}$	$4 + 4\sqrt{2}$	$4 + \sqrt{2}$

$3\sqrt{2}$	0	$2(1 + \sqrt{2})$
$3\sqrt{2}$	$\sqrt{2}$	$2\sqrt{2}$
$3\sqrt{2}$	$2\sqrt{2}$	$2(2 + \sqrt{2})$
$3\sqrt{2}$	$3\sqrt{2}$	$2(2 + \sqrt{2})$
$3\sqrt{2}$	$4\sqrt{2}$	$2\sqrt{2}$
$3\sqrt{2}$	1	$1 + 2\sqrt{2}$
$3\sqrt{2}$	$1 + \sqrt{2}$	4
$3\sqrt{2}$	$1 + 2\sqrt{2}$	$3(1 + \sqrt{2})$
$3\sqrt{2}$	$1 + 3\sqrt{2}$	$3 + \sqrt{2}$
$3\sqrt{2}$	$1 + 4\sqrt{2}$	$4(1 + \sqrt{2})$
$3\sqrt{2}$	2	$3 + 2\sqrt{2}$
$3\sqrt{2}$	$2 + \sqrt{2}$	$1 + 3\sqrt{2}$
$3\sqrt{2}$	$2 + 2\sqrt{2}$	$4\sqrt{2}$
$3\sqrt{2}$	$2 + 3\sqrt{2}$	0
$3\sqrt{2}$	$2 + 4\sqrt{2}$	$1 + \sqrt{2}$
$3\sqrt{2}$	3	$3 + 2\sqrt{2}$
$3\sqrt{2}$	$3 + \sqrt{2}$	$1 + \sqrt{2}$
$3\sqrt{2}$	$3 + 2\sqrt{2}$	0
$3\sqrt{2}$	$3 + 3\sqrt{2}$	$4\sqrt{2}$
$3\sqrt{2}$	$3 + 4\sqrt{2}$	$1 + 3\sqrt{2}$
$3\sqrt{2}$	4	$1 + 2\sqrt{2}$
$3\sqrt{2}$	$4 + \sqrt{2}$	$4(1 + \sqrt{2})$
$3\sqrt{2}$	$4 + 2\sqrt{2}$	$3 + \sqrt{2}$
$3\sqrt{2}$	$4 + 3\sqrt{2}$	$3(1 + \sqrt{2})$
$3\sqrt{2}$	$4 + 4\sqrt{2}$	4
$4\sqrt{2}$	0	$2(1 + \sqrt{2})$
$4\sqrt{2}$	$\sqrt{2}$	$2\sqrt{2}$
$4\sqrt{2}$	$2\sqrt{2}$	$2(2 + \sqrt{2})$
$4\sqrt{2}$	$3\sqrt{2}$	$2(2 + \sqrt{2})$
$4\sqrt{2}$	$4\sqrt{2}$	$2\sqrt{2}$
$4\sqrt{2}$	1	$1 + 2\sqrt{2}$
$4\sqrt{2}$	$1 + \sqrt{2}$	4
$4\sqrt{2}$	$1 + 2\sqrt{2}$	$3(1 + \sqrt{2})$
$4\sqrt{2}$	$1 + 3\sqrt{2}$	$3 + \sqrt{2}$
$4\sqrt{2}$	$1 + 4\sqrt{2}$	$4(1 + \sqrt{2})$
$4\sqrt{2}$	2	$3 + 2\sqrt{2}$
$4\sqrt{2}$	$2 + \sqrt{2}$	$1 + 3\sqrt{2}$
$4\sqrt{2}$	$2 + 2\sqrt{2}$	$4\sqrt{2}$
$4\sqrt{2}$	$2 + 3\sqrt{2}$	0

$4\sqrt{2}$	$2 + 4\sqrt{2}$	$1 + \sqrt{2}$
$4\sqrt{2}$	3	$3 + 2\sqrt{2}$
$4\sqrt{2}$	$3 + \sqrt{2}$	$1 + \sqrt{2}$
$4\sqrt{2}$	$3 + 2\sqrt{2}$	0
$4\sqrt{2}$	$3 + 3\sqrt{2}$	$4\sqrt{2}$
$4\sqrt{2}$	$3 + 4\sqrt{2}$	$1 + 3\sqrt{2}$
$4\sqrt{2}$	4	$1 + 2\sqrt{2}$
$4\sqrt{2}$	$4 + \sqrt{2}$	$4(1 + \sqrt{2})$
$4\sqrt{2}$	$4 + 2\sqrt{2}$	$3 + \sqrt{2}$
$4\sqrt{2}$	$4 + 3\sqrt{2}$	$3(1 + \sqrt{2})$
$4\sqrt{2}$	$4 + 4\sqrt{2}$	4
1	0	4
1	$\sqrt{2}$	2
1	$2\sqrt{2}$	1
1	$3\sqrt{2}$	1
1	$4\sqrt{2}$	2
1	1	3
1	$1 + \sqrt{2}$	$1 + 3\sqrt{2}$
1	$1 + 2\sqrt{2}$	$\sqrt{2}$
1	$1 + 3\sqrt{2}$	$4\sqrt{2}$
1	$1 + 4\sqrt{2}$	$1 + 2\sqrt{2}$
1	2	0
1	$2 + \sqrt{2}$	$3 + \sqrt{2}$
1	$2 + 2\sqrt{2}$	$2(1 + \sqrt{2})$
1	$2 + 3\sqrt{2}$	$2 + 3\sqrt{2}$
1	$2 + 4\sqrt{2}$	$3 + 4\sqrt{2}$
1	3	0
1	$3 + \sqrt{2}$	$3 + 4\sqrt{2}$
1	$3 + 2\sqrt{2}$	$2 + 3\sqrt{2}$
1	$3 + 3\sqrt{2}$	$2(1 + \sqrt{2})$
1	$3 + 4\sqrt{2}$	$3 + \sqrt{2}$
1	4	3
1	$4 + \sqrt{2}$	$1 + 2\sqrt{2}$
1	$4 + 2\sqrt{2}$	$4\sqrt{2}$
1	$4 + 3\sqrt{2}$	$\sqrt{2}$
1	$4 + 4\sqrt{2}$	$1 + 3\sqrt{2}$
$1 + \sqrt{2}$	0	$\sqrt{2}$
$1 + \sqrt{2}$	$\sqrt{2}$	$3 + \sqrt{2}$
$1 + \sqrt{2}$	$2\sqrt{2}$	$2 + \sqrt{2}$
$1 + \sqrt{2}$	$3\sqrt{2}$	$2 + \sqrt{2}$
$1 + \sqrt{2}$	$4\sqrt{2}$	$3 + \sqrt{2}$
$1 + \sqrt{2}$	1	$4 + \sqrt{2}$

$$\begin{array}{lll}
1 + \sqrt{2} & 1 + \sqrt{2} & 2 (1 + 2 \sqrt{2}) \\
1 + \sqrt{2} & 1 + 2 \sqrt{2} & 1 + 2 \sqrt{2} \\
1 + \sqrt{2} & 1 + 3 \sqrt{2} & 1 \\
1 + \sqrt{2} & 1 + 4 \sqrt{2} & 2 + 3 \sqrt{2} \\
1 + \sqrt{2} & 2 & 1 + \sqrt{2} \\
1 + \sqrt{2} & 2 + \sqrt{2} & 2 (2 + \sqrt{2}) \\
1 + \sqrt{2} & 2 + 2 \sqrt{2} & 3 (1 + \sqrt{2}) \\
1 + \sqrt{2} & 2 + 3 \sqrt{2} & 3 + 4 \sqrt{2} \\
1 + \sqrt{2} & 2 + 4 \sqrt{2} & 4 \\
1 + \sqrt{2} & 3 & 1 + \sqrt{2} \\
1 + \sqrt{2} & 3 + \sqrt{2} & 4 \\
1 + \sqrt{2} & 3 + 2 \sqrt{2} & 3 + 4 \sqrt{2} \\
1 + \sqrt{2} & 3 + 3 \sqrt{2} & 3 (1 + \sqrt{2}) \\
1 + \sqrt{2} & 3 + 4 \sqrt{2} & 2 (2 + \sqrt{2}) \\
1 + \sqrt{2} & 4 & 4 + \sqrt{2} \\
1 + \sqrt{2} & 4 + \sqrt{2} & 2 + 3 \sqrt{2} \\
1 + \sqrt{2} & 4 + 2 \sqrt{2} & 1 \\
1 + \sqrt{2} & 4 + 3 \sqrt{2} & 1 + 2 \sqrt{2} \\
1 + \sqrt{2} & 4 + 4 \sqrt{2} & 2 (1 + 2 \sqrt{2}) \\
1 + 2 \sqrt{2} & 0 & 3 + 4 \sqrt{2} \\
1 + 2 \sqrt{2} & \sqrt{2} & 1 + 4 \sqrt{2} \\
1 + 2 \sqrt{2} & 2 \sqrt{2} & 4 \sqrt{2} \\
1 + 2 \sqrt{2} & 3 \sqrt{2} & 4 \sqrt{2} \\
1 + 2 \sqrt{2} & 4 \sqrt{2} & 1 + 4 \sqrt{2} \\
1 + 2 \sqrt{2} & 1 & 2 (1 + 2 \sqrt{2}) \\
1 + 2 \sqrt{2} & 1 + \sqrt{2} & 2 \sqrt{2} \\
1 + 2 \sqrt{2} & 1 + 2 \sqrt{2} & 4 \\
1 + 2 \sqrt{2} & 1 + 3 \sqrt{2} & 4 + 3 \sqrt{2} \\
1 + 2 \sqrt{2} & 1 + 4 \sqrt{2} & \sqrt{2} \\
1 + 2 \sqrt{2} & 2 & 4 (1 + \sqrt{2}) \\
1 + 2 \sqrt{2} & 2 + \sqrt{2} & 2 \\
1 + 2 \sqrt{2} & 2 + 2 \sqrt{2} & 1 + \sqrt{2} \\
1 + 2 \sqrt{2} & 2 + 3 \sqrt{2} & 1 + 2 \sqrt{2} \\
1 + 2 \sqrt{2} & 2 + 4 \sqrt{2} & 2 + 3 \sqrt{2} \\
1 + 2 \sqrt{2} & 3 & 4 (1 + \sqrt{2}) \\
1 + 2 \sqrt{2} & 3 + \sqrt{2} & 2 + 3 \sqrt{2} \\
1 + 2 \sqrt{2} & 3 + 2 \sqrt{2} & 1 + 2 \sqrt{2} \\
1 + 2 \sqrt{2} & 3 + 3 \sqrt{2} & 1 + \sqrt{2} \\
1 + 2 \sqrt{2} & 3 + 4 \sqrt{2} & 2
\end{array}$$

$$1 + 2\sqrt{2} \quad 4 \quad 2(1 + 2\sqrt{2})$$

$$1 + 2\sqrt{2} \quad 4 + \sqrt{2} \quad \sqrt{2}$$

$$1 + 2\sqrt{2} \quad 4 + 2\sqrt{2} \quad 4 + 3\sqrt{2}$$

$$1 + 2\sqrt{2} \quad 4 + 3\sqrt{2} \quad 4$$

$$1 + 2\sqrt{2} \quad 4 + 4\sqrt{2} \quad 2\sqrt{2}$$

$$1 + 3\sqrt{2} \quad 0 \quad 3 + \sqrt{2}$$

$$1 + 3\sqrt{2} \quad \sqrt{2} \quad 1 + \sqrt{2}$$

$$1 + 3\sqrt{2} \quad 2\sqrt{2} \quad \sqrt{2}$$

$$1 + 3\sqrt{2} \quad 3\sqrt{2} \quad \sqrt{2}$$

$$1 + 3\sqrt{2} \quad 4\sqrt{2} \quad 1 + \sqrt{2}$$

$$1 + 3\sqrt{2} \quad 1 \quad 2 + \sqrt{2}$$

$$1 + 3\sqrt{2} \quad 1 + \sqrt{2} \quad 4\sqrt{2}$$

$$1 + 3\sqrt{2} \quad 1 + 2\sqrt{2} \quad 2(2 + \sqrt{2})$$

$$1 + 3\sqrt{2} \quad 1 + 3\sqrt{2} \quad 4$$

$$1 + 3\sqrt{2} \quad 1 + 4\sqrt{2} \quad 3\sqrt{2}$$

$$1 + 3\sqrt{2} \quad 2 \quad 4 + \sqrt{2}$$

$$1 + 3\sqrt{2} \quad 2 + \sqrt{2} \quad 2(1 + \sqrt{2})$$

$$1 + 3\sqrt{2} \quad 2 + 2\sqrt{2} \quad 1 + 3\sqrt{2}$$

$$1 + 3\sqrt{2} \quad 2 + 3\sqrt{2} \quad 1 + 4\sqrt{2}$$

$$1 + 3\sqrt{2} \quad 2 + 4\sqrt{2} \quad 2$$

$$1 + 3\sqrt{2} \quad 3 \quad 4 + \sqrt{2}$$

$$1 + 3\sqrt{2} \quad 3 + \sqrt{2} \quad 2$$

$$1 + 3\sqrt{2} \quad 3 + 2\sqrt{2} \quad 1 + 4\sqrt{2}$$

$$1 + 3\sqrt{2} \quad 3 + 3\sqrt{2} \quad 1 + 3\sqrt{2}$$

$$1 + 3\sqrt{2} \quad 3 + 4\sqrt{2} \quad 2(1 + \sqrt{2})$$

$$1 + 3\sqrt{2} \quad 4 \quad 2 + \sqrt{2}$$

$$1 + 3\sqrt{2} \quad 4 + \sqrt{2} \quad 3\sqrt{2}$$

$$1 + 3\sqrt{2} \quad 4 + 2\sqrt{2} \quad 4$$

$$1 + 3\sqrt{2} \quad 4 + 3\sqrt{2} \quad 2(2 + \sqrt{2})$$

$$1 + 3\sqrt{2} \quad 4 + 4\sqrt{2} \quad 4\sqrt{2}$$

$$1 + 4\sqrt{2} \quad 0 \quad 4\sqrt{2}$$

$$1 + 4\sqrt{2} \quad \sqrt{2} \quad 3 + 4\sqrt{2}$$

$$1 + 4\sqrt{2} \quad 2\sqrt{2} \quad 2(1 + 2\sqrt{2})$$

$$1 + 4\sqrt{2} \quad 3\sqrt{2} \quad 2(1 + 2\sqrt{2})$$

$$1 + 4\sqrt{2} \quad 4\sqrt{2} \quad 3 + 4\sqrt{2}$$

$$1 + 4\sqrt{2} \quad 1 \quad 4(1 + \sqrt{2})$$

$$1 + 4\sqrt{2} \quad 1 + \sqrt{2} \quad 2(1 + \sqrt{2})$$

$$1 + 4\sqrt{2} \quad 1 + 2\sqrt{2} \quad 1$$

$$1 + 4\sqrt{2} \quad 1 + 3\sqrt{2} \quad 1 + 3\sqrt{2}$$

$$1 + 4\sqrt{2} \quad 1 + 4\sqrt{2} \quad 2 + \sqrt{2}$$

$1 + 4\sqrt{2}$	2	$1 + 4\sqrt{2}$
$1 + 4\sqrt{2}$	$2 + \sqrt{2}$	4
$1 + 4\sqrt{2}$	$2 + 2\sqrt{2}$	$3 + \sqrt{2}$
$1 + 4\sqrt{2}$	$2 + 3\sqrt{2}$	$3 + 2\sqrt{2}$
$1 + 4\sqrt{2}$	$2 + 4\sqrt{2}$	$4 + 3\sqrt{2}$
$1 + 4\sqrt{2}$	3	$1 + 4\sqrt{2}$
$1 + 4\sqrt{2}$	$3 + \sqrt{2}$	$4 + 3\sqrt{2}$
$1 + 4\sqrt{2}$	$3 + 2\sqrt{2}$	$3 + 2\sqrt{2}$
$1 + 4\sqrt{2}$	$3 + 3\sqrt{2}$	$3 + \sqrt{2}$
$1 + 4\sqrt{2}$	$3 + 4\sqrt{2}$	4
$1 + 4\sqrt{2}$	4	$4(1 + \sqrt{2})$
$1 + 4\sqrt{2}$	$4 + \sqrt{2}$	$2 + \sqrt{2}$
$1 + 4\sqrt{2}$	$4 + 2\sqrt{2}$	$1 + 3\sqrt{2}$
$1 + 4\sqrt{2}$	$4 + 3\sqrt{2}$	1
$1 + 4\sqrt{2}$	$4 + 4\sqrt{2}$	$2(1 + \sqrt{2})$
2	0	2
2	$\sqrt{2}$	0
2	$2\sqrt{2}$	4
2	$3\sqrt{2}$	4
2	$4\sqrt{2}$	0
2	1	1
2	$1 + \sqrt{2}$	$4 + 3\sqrt{2}$
2	$1 + 2\sqrt{2}$	$3 + \sqrt{2}$
2	$1 + 3\sqrt{2}$	$3 + 4\sqrt{2}$
2	$1 + 4\sqrt{2}$	$2(2 + \sqrt{2})$
2	2	3
2	$2 + \sqrt{2}$	$1 + \sqrt{2}$
2	$2 + 2\sqrt{2}$	$2\sqrt{2}$
2	$2 + 3\sqrt{2}$	$3\sqrt{2}$
2	$2 + 4\sqrt{2}$	$1 + 4\sqrt{2}$
2	3	3
2	$3 + \sqrt{2}$	$1 + 4\sqrt{2}$
2	$3 + 2\sqrt{2}$	$3\sqrt{2}$
2	$3 + 3\sqrt{2}$	$2\sqrt{2}$
2	$3 + 4\sqrt{2}$	$1 + \sqrt{2}$
2	4	1
2	$4 + \sqrt{2}$	$2(2 + \sqrt{2})$
2	$4 + 2\sqrt{2}$	$3 + 4\sqrt{2}$
2	$4 + 3\sqrt{2}$	$3 + \sqrt{2}$
2	$4 + 4\sqrt{2}$	$4 + 3\sqrt{2}$
$2 + \sqrt{2}$	0	4
$2 + \sqrt{2}$	$\sqrt{2}$	2

$2 + \sqrt{2}$	$2\sqrt{2}$	1
$2 + \sqrt{2}$	$3\sqrt{2}$	1
$2 + \sqrt{2}$	$4\sqrt{2}$	2
$2 + \sqrt{2}$	1	3
$2 + \sqrt{2}$	$1 + \sqrt{2}$	$1 + 3\sqrt{2}$
$2 + \sqrt{2}$	$1 + 2\sqrt{2}$	$\sqrt{2}$
$2 + \sqrt{2}$	$1 + 3\sqrt{2}$	$4\sqrt{2}$
$2 + \sqrt{2}$	$1 + 4\sqrt{2}$	$1 + 2\sqrt{2}$
$2 + \sqrt{2}$	2	0
$2 + \sqrt{2}$	$2 + \sqrt{2}$	$3 + \sqrt{2}$
$2 + \sqrt{2}$	$2 + 2\sqrt{2}$	$2(1 + \sqrt{2})$
$2 + \sqrt{2}$	$2 + 3\sqrt{2}$	$2 + 3\sqrt{2}$
$2 + \sqrt{2}$	$2 + 4\sqrt{2}$	$3 + 4\sqrt{2}$
$2 + \sqrt{2}$	3	0
$2 + \sqrt{2}$	$3 + \sqrt{2}$	$3 + 4\sqrt{2}$
$2 + \sqrt{2}$	$3 + 2\sqrt{2}$	$2 + 3\sqrt{2}$
$2 + \sqrt{2}$	$3 + 3\sqrt{2}$	$2(1 + \sqrt{2})$
$2 + \sqrt{2}$	$3 + 4\sqrt{2}$	$3 + \sqrt{2}$
$2 + \sqrt{2}$	4	3
$2 + \sqrt{2}$	$4 + \sqrt{2}$	$1 + 2\sqrt{2}$
$2 + \sqrt{2}$	$4 + 2\sqrt{2}$	$4\sqrt{2}$
$2 + \sqrt{2}$	$4 + 3\sqrt{2}$	$\sqrt{2}$
$2 + \sqrt{2}$	$4 + 4\sqrt{2}$	$1 + 3\sqrt{2}$
$2 + 2\sqrt{2}$	0	$2\sqrt{2}$
$2 + 2\sqrt{2}$	$\sqrt{2}$	$3 + 2\sqrt{2}$
$2 + 2\sqrt{2}$	$2\sqrt{2}$	$2(1 + \sqrt{2})$
$2 + 2\sqrt{2}$	$3\sqrt{2}$	$2(1 + \sqrt{2})$
$2 + 2\sqrt{2}$	$4\sqrt{2}$	$3 + 2\sqrt{2}$
$2 + 2\sqrt{2}$	1	$2(2 + \sqrt{2})$
$2 + 2\sqrt{2}$	$1 + \sqrt{2}$	2
$2 + 2\sqrt{2}$	$1 + 2\sqrt{2}$	$1 + 3\sqrt{2}$
$2 + 2\sqrt{2}$	$1 + 3\sqrt{2}$	$1 + \sqrt{2}$
$2 + 2\sqrt{2}$	$1 + 4\sqrt{2}$	$2(1 + 2\sqrt{2})$
$2 + 2\sqrt{2}$	2	$1 + 2\sqrt{2}$
$2 + 2\sqrt{2}$	$2 + \sqrt{2}$	$4 + 3\sqrt{2}$
$2 + 2\sqrt{2}$	$2 + 2\sqrt{2}$	$3 + 4\sqrt{2}$
$2 + 2\sqrt{2}$	$2 + 3\sqrt{2}$	3
$2 + 2\sqrt{2}$	$2 + 4\sqrt{2}$	$4 + \sqrt{2}$
$2 + 2\sqrt{2}$	3	$1 + 2\sqrt{2}$
$2 + 2\sqrt{2}$	$3 + \sqrt{2}$	$4 + \sqrt{2}$

$$\begin{array}{l}
2 + 2\sqrt{2} \quad 3 + 2\sqrt{2} \quad 3 \\
2 + 2\sqrt{2} \quad 3 + 3\sqrt{2} \quad 3 + 4\sqrt{2} \\
2 + 2\sqrt{2} \quad 3 + 4\sqrt{2} \quad 4 + 3\sqrt{2} \\
2 + 2\sqrt{2} \quad 4 \quad 2(2 + \sqrt{2}) \\
2 + 2\sqrt{2} \quad 4 + \sqrt{2} \quad 2(1 + 2\sqrt{2}) \\
2 + 2\sqrt{2} \quad 4 + 2\sqrt{2} \quad 1 + \sqrt{2} \\
2 + 2\sqrt{2} \quad 4 + 3\sqrt{2} \quad 1 + 3\sqrt{2} \\
2 + 2\sqrt{2} \quad 4 + 4\sqrt{2} \quad 2 \\
2 + 3\sqrt{2} \quad 0 \quad 3\sqrt{2} \\
2 + 3\sqrt{2} \quad \sqrt{2} \quad 3(1 + \sqrt{2}) \\
2 + 3\sqrt{2} \quad 2\sqrt{2} \quad 2 + 3\sqrt{2} \\
2 + 3\sqrt{2} \quad 3\sqrt{2} \quad 2 + 3\sqrt{2} \\
2 + 3\sqrt{2} \quad 4\sqrt{2} \quad 3(1 + \sqrt{2}) \\
2 + 3\sqrt{2} \quad 1 \quad 4 + 3\sqrt{2} \\
2 + 3\sqrt{2} \quad 1 + \sqrt{2} \quad 2 + \sqrt{2} \\
2 + 3\sqrt{2} \quad 1 + 2\sqrt{2} \quad 1 + 4\sqrt{2} \\
2 + 3\sqrt{2} \quad 1 + 3\sqrt{2} \quad 1 + 2\sqrt{2} \\
2 + 3\sqrt{2} \quad 1 + 4\sqrt{2} \quad 2 \\
2 + 3\sqrt{2} \quad 2 \quad 1 + 3\sqrt{2} \\
2 + 3\sqrt{2} \quad 2 + \sqrt{2} \quad 4(1 + \sqrt{2}) \\
2 + 3\sqrt{2} \quad 2 + 2\sqrt{2} \quad 3 \\
2 + 3\sqrt{2} \quad 2 + 3\sqrt{2} \quad 3 + \sqrt{2} \\
2 + 3\sqrt{2} \quad 2 + 4\sqrt{2} \quad 2(2 + \sqrt{2}) \\
2 + 3\sqrt{2} \quad 3 \quad 1 + 3\sqrt{2} \\
2 + 3\sqrt{2} \quad 3 + \sqrt{2} \quad 2(2 + \sqrt{2}) \\
2 + 3\sqrt{2} \quad 3 + 2\sqrt{2} \quad 3 + \sqrt{2} \\
2 + 3\sqrt{2} \quad 3 + 3\sqrt{2} \quad 3 \\
2 + 3\sqrt{2} \quad 3 + 4\sqrt{2} \quad 4(1 + \sqrt{2}) \\
2 + 3\sqrt{2} \quad 4 \quad 4 + 3\sqrt{2} \\
2 + 3\sqrt{2} \quad 4 + \sqrt{2} \quad 2 \\
2 + 3\sqrt{2} \quad 4 + 2\sqrt{2} \quad 1 + 2\sqrt{2} \\
2 + 3\sqrt{2} \quad 4 + 3\sqrt{2} \quad 1 + 4\sqrt{2} \\
2 + 3\sqrt{2} \quad 4 + 4\sqrt{2} \quad 2 + \sqrt{2} \\
2 + 4\sqrt{2} \quad 0 \quad 4 \\
2 + 4\sqrt{2} \quad \sqrt{2} \quad 2 \\
2 + 4\sqrt{2} \quad 2\sqrt{2} \quad 1 \\
2 + 4\sqrt{2} \quad 3\sqrt{2} \quad 1 \\
2 + 4\sqrt{2} \quad 4\sqrt{2} \quad 2 \\
2 + 4\sqrt{2} \quad 1 \quad 3 \\
2 + 4\sqrt{2} \quad 1 + \sqrt{2} \quad 1 + 3\sqrt{2}
\end{array}$$

$2 + 4\sqrt{2}$	$1 + 2\sqrt{2}$	$\sqrt{2}$
$2 + 4\sqrt{2}$	$1 + 3\sqrt{2}$	$4\sqrt{2}$
$2 + 4\sqrt{2}$	$1 + 4\sqrt{2}$	$1 + 2\sqrt{2}$
$2 + 4\sqrt{2}$	2	0
$2 + 4\sqrt{2}$	$2 + \sqrt{2}$	$3 + \sqrt{2}$
$2 + 4\sqrt{2}$	$2 + 2\sqrt{2}$	$2(1 + \sqrt{2})$
$2 + 4\sqrt{2}$	$2 + 3\sqrt{2}$	$2 + 3\sqrt{2}$
$2 + 4\sqrt{2}$	$2 + 4\sqrt{2}$	$3 + 4\sqrt{2}$
$2 + 4\sqrt{2}$	3	0
$2 + 4\sqrt{2}$	$3 + \sqrt{2}$	$3 + 4\sqrt{2}$
$2 + 4\sqrt{2}$	$3 + 2\sqrt{2}$	$2 + 3\sqrt{2}$
$2 + 4\sqrt{2}$	$3 + 3\sqrt{2}$	$2(1 + \sqrt{2})$
$2 + 4\sqrt{2}$	$3 + 4\sqrt{2}$	$3 + \sqrt{2}$
$2 + 4\sqrt{2}$	4	3
$2 + 4\sqrt{2}$	$4 + \sqrt{2}$	$1 + 2\sqrt{2}$
$2 + 4\sqrt{2}$	$4 + 2\sqrt{2}$	$4\sqrt{2}$
$2 + 4\sqrt{2}$	$4 + 3\sqrt{2}$	$\sqrt{2}$
$2 + 4\sqrt{2}$	$4 + 4\sqrt{2}$	$1 + 3\sqrt{2}$
3	0	2
3	$\sqrt{2}$	0
3	$2\sqrt{2}$	4
3	$3\sqrt{2}$	4
3	$4\sqrt{2}$	0
3	1	1
3	$1 + \sqrt{2}$	$4 + 3\sqrt{2}$
3	$1 + 2\sqrt{2}$	$3 + \sqrt{2}$
3	$1 + 3\sqrt{2}$	$3 + 4\sqrt{2}$
3	$1 + 4\sqrt{2}$	$2(2 + \sqrt{2})$
3	2	3
3	$2 + \sqrt{2}$	$1 + \sqrt{2}$
3	$2 + 2\sqrt{2}$	$2\sqrt{2}$
3	$2 + 3\sqrt{2}$	$3\sqrt{2}$
3	$2 + 4\sqrt{2}$	$1 + 4\sqrt{2}$
3	3	3
3	$3 + \sqrt{2}$	$1 + 4\sqrt{2}$
3	$3 + 2\sqrt{2}$	$3\sqrt{2}$
3	$3 + 3\sqrt{2}$	$2\sqrt{2}$
3	$3 + 4\sqrt{2}$	$1 + \sqrt{2}$
3	4	1
3	$4 + \sqrt{2}$	$2(2 + \sqrt{2})$
3	$4 + 2\sqrt{2}$	$3 + 4\sqrt{2}$
3	$4 + 3\sqrt{2}$	$3 + \sqrt{2}$

3	$4 + 4\sqrt{2}$	$4 + 3\sqrt{2}$
$3 + \sqrt{2}$	0	0
$3 + \sqrt{2}$	$\sqrt{2}$	3
$3 + \sqrt{2}$	$2\sqrt{2}$	2
$3 + \sqrt{2}$	$3\sqrt{2}$	2
$3 + \sqrt{2}$	$4\sqrt{2}$	3
$3 + \sqrt{2}$	1	4
$3 + \sqrt{2}$	$1 + \sqrt{2}$	$2 + 3\sqrt{2}$
$3 + \sqrt{2}$	$1 + 2\sqrt{2}$	$1 + \sqrt{2}$
$3 + \sqrt{2}$	$1 + 3\sqrt{2}$	$1 + 4\sqrt{2}$
$3 + \sqrt{2}$	$1 + 4\sqrt{2}$	$2(1 + \sqrt{2})$
$3 + \sqrt{2}$	2	1
$3 + \sqrt{2}$	$2 + \sqrt{2}$	$4 + \sqrt{2}$
$3 + \sqrt{2}$	$2 + 2\sqrt{2}$	$3 + 2\sqrt{2}$
$3 + \sqrt{2}$	$2 + 3\sqrt{2}$	$3(1 + \sqrt{2})$
$3 + \sqrt{2}$	$2 + 4\sqrt{2}$	$4(1 + \sqrt{2})$
$3 + \sqrt{2}$	3	1
$3 + \sqrt{2}$	$3 + \sqrt{2}$	$4(1 + \sqrt{2})$
$3 + \sqrt{2}$	$3 + 2\sqrt{2}$	$3(1 + \sqrt{2})$
$3 + \sqrt{2}$	$3 + 3\sqrt{2}$	$3 + 2\sqrt{2}$
$3 + \sqrt{2}$	$3 + 4\sqrt{2}$	$4 + \sqrt{2}$
$3 + \sqrt{2}$	4	4
$3 + \sqrt{2}$	$4 + \sqrt{2}$	$2(1 + \sqrt{2})$
$3 + \sqrt{2}$	$4 + 2\sqrt{2}$	$1 + 4\sqrt{2}$
$3 + \sqrt{2}$	$4 + 3\sqrt{2}$	$1 + \sqrt{2}$
$3 + \sqrt{2}$	$4 + 4\sqrt{2}$	$2 + 3\sqrt{2}$
$3 + 2\sqrt{2}$	0	$2(2 + \sqrt{2})$
$3 + 2\sqrt{2}$	$\sqrt{2}$	$2(1 + \sqrt{2})$
$3 + 2\sqrt{2}$	$2\sqrt{2}$	$1 + 2\sqrt{2}$
$3 + 2\sqrt{2}$	$3\sqrt{2}$	$1 + 2\sqrt{2}$
$3 + 2\sqrt{2}$	$4\sqrt{2}$	$2(1 + \sqrt{2})$
$3 + 2\sqrt{2}$	1	$3 + 2\sqrt{2}$
$3 + 2\sqrt{2}$	$1 + \sqrt{2}$	1
$3 + 2\sqrt{2}$	$1 + 2\sqrt{2}$	$3\sqrt{2}$
$3 + 2\sqrt{2}$	$1 + 3\sqrt{2}$	$\sqrt{2}$
$3 + 2\sqrt{2}$	$1 + 4\sqrt{2}$	$1 + 4\sqrt{2}$
$3 + 2\sqrt{2}$	2	$2\sqrt{2}$
$3 + 2\sqrt{2}$	$2 + \sqrt{2}$	$3(1 + \sqrt{2})$
$3 + 2\sqrt{2}$	$2 + 2\sqrt{2}$	$2(1 + 2\sqrt{2})$

$$\begin{array}{l}
3 + 2\sqrt{2} \quad 2 + 3\sqrt{2} \quad 2 \\
3 + 2\sqrt{2} \quad 2 + 4\sqrt{2} \quad 3 + \sqrt{2} \\
3 + 2\sqrt{2} \quad 3 \quad 2\sqrt{2} \\
3 + 2\sqrt{2} \quad 3 + \sqrt{2} \quad 3 + \sqrt{2} \\
3 + 2\sqrt{2} \quad 3 + 2\sqrt{2} \quad 2 \\
3 + 2\sqrt{2} \quad 3 + 3\sqrt{2} \quad 2(1 + 2\sqrt{2}) \\
3 + 2\sqrt{2} \quad 3 + 4\sqrt{2} \quad 3(1 + \sqrt{2}) \\
3 + 2\sqrt{2} \quad 4 \quad 3 + 2\sqrt{2} \\
3 + 2\sqrt{2} \quad 4 + \sqrt{2} \quad 1 + 4\sqrt{2} \\
3 + 2\sqrt{2} \quad 4 + 2\sqrt{2} \quad \sqrt{2} \\
3 + 2\sqrt{2} \quad 4 + 3\sqrt{2} \quad 3\sqrt{2} \\
3 + 2\sqrt{2} \quad 4 + 4\sqrt{2} \quad 1 \\
3 + 3\sqrt{2} \quad 0 \quad 4 + 3\sqrt{2} \\
3 + 3\sqrt{2} \quad \sqrt{2} \quad 2 + 3\sqrt{2} \\
3 + 3\sqrt{2} \quad 2\sqrt{2} \quad 1 + 3\sqrt{2} \\
3 + 3\sqrt{2} \quad 3\sqrt{2} \quad 1 + 3\sqrt{2} \\
3 + 3\sqrt{2} \quad 4\sqrt{2} \quad 2 + 3\sqrt{2} \\
3 + 3\sqrt{2} \quad 1 \quad 3(1 + \sqrt{2}) \\
3 + 3\sqrt{2} \quad 1 + \sqrt{2} \quad 1 + \sqrt{2} \\
3 + 3\sqrt{2} \quad 1 + 2\sqrt{2} \quad 4\sqrt{2} \\
3 + 3\sqrt{2} \quad 1 + 3\sqrt{2} \quad 2\sqrt{2} \\
3 + 3\sqrt{2} \quad 1 + 4\sqrt{2} \quad 1 \\
3 + 3\sqrt{2} \quad 2 \quad 3\sqrt{2} \\
3 + 3\sqrt{2} \quad 2 + \sqrt{2} \quad 3 + 4\sqrt{2} \\
3 + 3\sqrt{2} \quad 2 + 2\sqrt{2} \quad 2 \\
3 + 3\sqrt{2} \quad 2 + 3\sqrt{2} \quad 2 + \sqrt{2} \\
3 + 3\sqrt{2} \quad 2 + 4\sqrt{2} \quad 3 + 2\sqrt{2} \\
3 + 3\sqrt{2} \quad 3 \quad 3\sqrt{2} \\
3 + 3\sqrt{2} \quad 3 + \sqrt{2} \quad 3 + 2\sqrt{2} \\
3 + 3\sqrt{2} \quad 3 + 2\sqrt{2} \quad 2 + \sqrt{2} \\
3 + 3\sqrt{2} \quad 3 + 3\sqrt{2} \quad 2 \\
3 + 3\sqrt{2} \quad 3 + 4\sqrt{2} \quad 3 + 4\sqrt{2} \\
3 + 3\sqrt{2} \quad 4 \quad 3(1 + \sqrt{2}) \\
3 + 3\sqrt{2} \quad 4 + \sqrt{2} \quad 1 \\
3 + 3\sqrt{2} \quad 4 + 2\sqrt{2} \quad 2\sqrt{2} \\
3 + 3\sqrt{2} \quad 4 + 3\sqrt{2} \quad 4\sqrt{2} \\
3 + 3\sqrt{2} \quad 4 + 4\sqrt{2} \quad 1 + \sqrt{2} \\
3 + 4\sqrt{2} \quad 0 \quad 0 \\
3 + 4\sqrt{2} \quad \sqrt{2} \quad 3 \\
3 + 4\sqrt{2} \quad 2\sqrt{2} \quad 2 \\
3 + 4\sqrt{2} \quad 3\sqrt{2} \quad 2
\end{array}$$

$$\begin{array}{l}
3 + 4\sqrt{2} \quad 4\sqrt{2} \quad 3 \\
3 + 4\sqrt{2} \quad 1 \quad 4 \\
3 + 4\sqrt{2} \quad 1 + \sqrt{2} \quad 2 + 3\sqrt{2} \\
3 + 4\sqrt{2} \quad 1 + 2\sqrt{2} \quad 1 + \sqrt{2} \\
3 + 4\sqrt{2} \quad 1 + 3\sqrt{2} \quad 1 + 4\sqrt{2} \\
3 + 4\sqrt{2} \quad 1 + 4\sqrt{2} \quad 2(1 + \sqrt{2}) \\
3 + 4\sqrt{2} \quad 2 \quad 1 \\
3 + 4\sqrt{2} \quad 2 + \sqrt{2} \quad 4 + \sqrt{2} \\
3 + 4\sqrt{2} \quad 2 + 2\sqrt{2} \quad 3 + 2\sqrt{2} \\
3 + 4\sqrt{2} \quad 2 + 3\sqrt{2} \quad 3(1 + \sqrt{2}) \\
3 + 4\sqrt{2} \quad 2 + 4\sqrt{2} \quad 4(1 + \sqrt{2}) \\
3 + 4\sqrt{2} \quad 3 \quad 1 \\
3 + 4\sqrt{2} \quad 3 + \sqrt{2} \quad 4(1 + \sqrt{2}) \\
3 + 4\sqrt{2} \quad 3 + 2\sqrt{2} \quad 3(1 + \sqrt{2}) \\
3 + 4\sqrt{2} \quad 3 + 3\sqrt{2} \quad 3 + 2\sqrt{2} \\
3 + 4\sqrt{2} \quad 3 + 4\sqrt{2} \quad 4 + \sqrt{2} \\
3 + 4\sqrt{2} \quad 4 \quad 4 \\
3 + 4\sqrt{2} \quad 4 + \sqrt{2} \quad 2(1 + \sqrt{2}) \\
3 + 4\sqrt{2} \quad 4 + 2\sqrt{2} \quad 1 + 4\sqrt{2} \\
3 + 4\sqrt{2} \quad 4 + 3\sqrt{2} \quad 1 + \sqrt{2} \\
3 + 4\sqrt{2} \quad 4 + 4\sqrt{2} \quad 2 + 3\sqrt{2} \\
4 \quad 0 \quad 0 \\
4 \quad \sqrt{2} \quad 3 \\
4 \quad 2\sqrt{2} \quad 2 \\
4 \quad 3\sqrt{2} \quad 2 \\
4 \quad 4\sqrt{2} \quad 3 \\
4 \quad 1 \quad 4 \\
4 \quad 1 + \sqrt{2} \quad 2 + 3\sqrt{2} \\
4 \quad 1 + 2\sqrt{2} \quad 1 + \sqrt{2} \\
4 \quad 1 + 3\sqrt{2} \quad 1 + 4\sqrt{2} \\
4 \quad 1 + 4\sqrt{2} \quad 2(1 + \sqrt{2}) \\
4 \quad 2 \quad 1 \\
4 \quad 2 + \sqrt{2} \quad 4 + \sqrt{2} \\
4 \quad 2 + 2\sqrt{2} \quad 3 + 2\sqrt{2} \\
4 \quad 2 + 3\sqrt{2} \quad 3(1 + \sqrt{2}) \\
4 \quad 2 + 4\sqrt{2} \quad 4(1 + \sqrt{2}) \\
4 \quad 3 \quad 1 \\
4 \quad 3 + \sqrt{2} \quad 4(1 + \sqrt{2}) \\
4 \quad 3 + 2\sqrt{2} \quad 3(1 + \sqrt{2}) \\
4 \quad 3 + 3\sqrt{2} \quad 3 + 2\sqrt{2}
\end{array}$$

4	$3 + 4\sqrt{2}$	$4 + \sqrt{2}$
4	4	4
4	$4 + \sqrt{2}$	$2(1 + \sqrt{2})$
4	$4 + 2\sqrt{2}$	$1 + 4\sqrt{2}$
4	$4 + 3\sqrt{2}$	$1 + \sqrt{2}$
4	$4 + 4\sqrt{2}$	$2 + 3\sqrt{2}$
$4 + \sqrt{2}$	0	$4 + \sqrt{2}$
$4 + \sqrt{2}$	$\sqrt{2}$	$2 + \sqrt{2}$
$4 + \sqrt{2}$	$2\sqrt{2}$	$1 + \sqrt{2}$
$4 + \sqrt{2}$	$3\sqrt{2}$	$1 + \sqrt{2}$
$4 + \sqrt{2}$	$4\sqrt{2}$	$2 + \sqrt{2}$
$4 + \sqrt{2}$	1	$3 + \sqrt{2}$
$4 + \sqrt{2}$	$1 + \sqrt{2}$	$1 + 4\sqrt{2}$
$4 + \sqrt{2}$	$1 + 2\sqrt{2}$	$2\sqrt{2}$
$4 + \sqrt{2}$	$1 + 3\sqrt{2}$	0
$4 + \sqrt{2}$	$1 + 4\sqrt{2}$	$1 + 3\sqrt{2}$
$4 + \sqrt{2}$	2	$\sqrt{2}$
$4 + \sqrt{2}$	$2 + \sqrt{2}$	$3 + 2\sqrt{2}$
$4 + \sqrt{2}$	$2 + 2\sqrt{2}$	$2 + 3\sqrt{2}$
$4 + \sqrt{2}$	$2 + 3\sqrt{2}$	$2(1 + 2\sqrt{2})$
$4 + \sqrt{2}$	$2 + 4\sqrt{2}$	3
$4 + \sqrt{2}$	3	$\sqrt{2}$
$4 + \sqrt{2}$	$3 + \sqrt{2}$	3
$4 + \sqrt{2}$	$3 + 2\sqrt{2}$	$2(1 + 2\sqrt{2})$
$4 + \sqrt{2}$	$3 + 3\sqrt{2}$	$2 + 3\sqrt{2}$
$4 + \sqrt{2}$	$3 + 4\sqrt{2}$	$3 + 2\sqrt{2}$
$4 + \sqrt{2}$	4	$3 + \sqrt{2}$
$4 + \sqrt{2}$	$4 + \sqrt{2}$	$1 + 3\sqrt{2}$
$4 + \sqrt{2}$	$4 + 2\sqrt{2}$	0
$4 + \sqrt{2}$	$4 + 3\sqrt{2}$	$2\sqrt{2}$
$4 + \sqrt{2}$	$4 + 4\sqrt{2}$	$1 + 4\sqrt{2}$
$4 + 2\sqrt{2}$	0	$1 + 4\sqrt{2}$
$4 + 2\sqrt{2}$	$\sqrt{2}$	$4(1 + \sqrt{2})$
$4 + 2\sqrt{2}$	$2\sqrt{2}$	$3 + 4\sqrt{2}$
$4 + 2\sqrt{2}$	$3\sqrt{2}$	$3 + 4\sqrt{2}$
$4 + 2\sqrt{2}$	$4\sqrt{2}$	$4(1 + \sqrt{2})$
$4 + 2\sqrt{2}$	1	$4\sqrt{2}$
$4 + 2\sqrt{2}$	$1 + \sqrt{2}$	$3 + 2\sqrt{2}$
$4 + 2\sqrt{2}$	$1 + 2\sqrt{2}$	2
$4 + 2\sqrt{2}$	$1 + 3\sqrt{2}$	$2 + 3\sqrt{2}$
$4 + 2\sqrt{2}$	$1 + 4\sqrt{2}$	$3 + \sqrt{2}$

$$4 + 2\sqrt{2} \quad 2 \quad 2(1 + 2\sqrt{2})$$

$$4 + 2\sqrt{2} \quad 2 + \sqrt{2} \quad 0$$

$$4 + 2\sqrt{2} \quad 2 + 2\sqrt{2} \quad 4 + \sqrt{2}$$

$$4 + 2\sqrt{2} \quad 2 + 3\sqrt{2} \quad 2(2 + \sqrt{2})$$

$$4 + 2\sqrt{2} \quad 2 + 4\sqrt{2} \quad 3\sqrt{2}$$

$$4 + 2\sqrt{2} \quad 3 \quad 2(1 + 2\sqrt{2})$$

$$4 + 2\sqrt{2} \quad 3 + \sqrt{2} \quad 3\sqrt{2}$$

$$4 + 2\sqrt{2} \quad 3 + 2\sqrt{2} \quad 2(2 + \sqrt{2})$$

$$4 + 2\sqrt{2} \quad 3 + 3\sqrt{2} \quad 4 + \sqrt{2}$$

$$4 + 2\sqrt{2} \quad 3 + 4\sqrt{2} \quad 0$$

$$4 + 2\sqrt{2} \quad 4 \quad 4\sqrt{2}$$

$$4 + 2\sqrt{2} \quad 4 + \sqrt{2} \quad 3 + \sqrt{2}$$

$$4 + 2\sqrt{2} \quad 4 + 2\sqrt{2} \quad 2 + 3\sqrt{2}$$

$$4 + 2\sqrt{2} \quad 4 + 3\sqrt{2} \quad 2$$

$$4 + 2\sqrt{2} \quad 4 + 4\sqrt{2} \quad 3 + 2\sqrt{2}$$

$$4 + 3\sqrt{2} \quad 0 \quad 1 + \sqrt{2}$$

$$4 + 3\sqrt{2} \quad \sqrt{2} \quad 4 + \sqrt{2}$$

$$4 + 3\sqrt{2} \quad 2\sqrt{2} \quad 3 + \sqrt{2}$$

$$4 + 3\sqrt{2} \quad 3\sqrt{2} \quad 3 + \sqrt{2}$$

$$4 + 3\sqrt{2} \quad 4\sqrt{2} \quad 4 + \sqrt{2}$$

$$4 + 3\sqrt{2} \quad 1 \quad \sqrt{2}$$

$$4 + 3\sqrt{2} \quad 1 + \sqrt{2} \quad 3 + 4\sqrt{2}$$

$$4 + 3\sqrt{2} \quad 1 + 2\sqrt{2} \quad 2(1 + \sqrt{2})$$

$$4 + 3\sqrt{2} \quad 1 + 3\sqrt{2} \quad 2$$

$$4 + 3\sqrt{2} \quad 1 + 4\sqrt{2} \quad 3(1 + \sqrt{2})$$

$$4 + 3\sqrt{2} \quad 2 \quad 2 + \sqrt{2}$$

$$4 + 3\sqrt{2} \quad 2 + \sqrt{2} \quad 2\sqrt{2}$$

$$4 + 3\sqrt{2} \quad 2 + 2\sqrt{2} \quad 4 + 3\sqrt{2}$$

$$4 + 3\sqrt{2} \quad 2 + 3\sqrt{2} \quad 4(1 + \sqrt{2})$$

$$4 + 3\sqrt{2} \quad 2 + 4\sqrt{2} \quad 0$$

$$4 + 3\sqrt{2} \quad 3 \quad 2 + \sqrt{2}$$

$$4 + 3\sqrt{2} \quad 3 + \sqrt{2} \quad 0$$

$$4 + 3\sqrt{2} \quad 3 + 2\sqrt{2} \quad 4(1 + \sqrt{2})$$

$$4 + 3\sqrt{2} \quad 3 + 3\sqrt{2} \quad 4 + 3\sqrt{2}$$

$$4 + 3\sqrt{2} \quad 3 + 4\sqrt{2} \quad 2\sqrt{2}$$

$$4 + 3\sqrt{2} \quad 4 \quad \sqrt{2}$$

$$4 + 3\sqrt{2} \quad 4 + \sqrt{2} \quad 3(1 + \sqrt{2})$$

$$4 + 3\sqrt{2} \quad 4 + 2\sqrt{2} \quad 2$$

$$4 + 3\sqrt{2} \quad 4 + 3\sqrt{2} \quad 2(1 + \sqrt{2})$$

$4 + 3\sqrt{2}$	$4 + 4\sqrt{2}$	$3 + 4\sqrt{2}$
$4 + 4\sqrt{2}$	0	$4(1 + \sqrt{2})$
$4 + 4\sqrt{2}$	$\sqrt{2}$	$2(1 + 2\sqrt{2})$
$4 + 4\sqrt{2}$	$2\sqrt{2}$	$1 + 4\sqrt{2}$
$4 + 4\sqrt{2}$	$3\sqrt{2}$	$1 + 4\sqrt{2}$
$4 + 4\sqrt{2}$	$4\sqrt{2}$	$2(1 + 2\sqrt{2})$
$4 + 4\sqrt{2}$	1	$3 + 4\sqrt{2}$
$4 + 4\sqrt{2}$	$1 + \sqrt{2}$	$1 + 2\sqrt{2}$
$4 + 4\sqrt{2}$	$1 + 2\sqrt{2}$	0
$4 + 4\sqrt{2}$	$1 + 3\sqrt{2}$	$3\sqrt{2}$
$4 + 4\sqrt{2}$	$1 + 4\sqrt{2}$	$1 + \sqrt{2}$
$4 + 4\sqrt{2}$	2	$4\sqrt{2}$
$4 + 4\sqrt{2}$	$2 + \sqrt{2}$	3
$4 + 4\sqrt{2}$	$2 + 2\sqrt{2}$	$2 + \sqrt{2}$
$4 + 4\sqrt{2}$	$2 + 3\sqrt{2}$	$2(1 + \sqrt{2})$
$4 + 4\sqrt{2}$	$2 + 4\sqrt{2}$	$3(1 + \sqrt{2})$
$4 + 4\sqrt{2}$	3	$4\sqrt{2}$
$4 + 4\sqrt{2}$	$3 + \sqrt{2}$	$3(1 + \sqrt{2})$
$4 + 4\sqrt{2}$	$3 + 2\sqrt{2}$	$2(1 + \sqrt{2})$
$4 + 4\sqrt{2}$	$3 + 3\sqrt{2}$	$2 + \sqrt{2}$
$4 + 4\sqrt{2}$	$3 + 4\sqrt{2}$	3
$4 + 4\sqrt{2}$	4	$3 + 4\sqrt{2}$
$4 + 4\sqrt{2}$	$4 + \sqrt{2}$	$1 + \sqrt{2}$
$4 + 4\sqrt{2}$	$4 + 2\sqrt{2}$	$3\sqrt{2}$
$4 + 4\sqrt{2}$	$4 + 3\sqrt{2}$	0
$4 + 4\sqrt{2}$	$4 + 4\sqrt{2}$	$1 + 2\sqrt{2}$

```
In[17]:= v = Flatten[Table[Factor[f[x, y]], {x, u}, {y, u}], 1];
```

```
In[18]:= Count[v, 0]
```

```
Out[18]= 31
```