

	Grids								
r	$[a_1]$	$[a_1] \times [a_2]$	$[n]^2$	$[a_1] \times [a_2] \times [a_3]$	$[n]^3$	\cdots	$\prod_{i=1}^d [a_i]$	$[n]^d$	$[2]^d$
$r = 0$	0	0	0	0	0		0	0	0
$r = 1$	1	1	1	1	1		1	1	1
$r = 2$	$\lceil \frac{a_1-1}{2} \rceil + 1$	$\lceil \frac{a_1+a_2-2}{2} \rceil + 1$	n	$\lceil \frac{a_1+a_2+a_3-3}{2} \rceil + 1$	$\left\lceil \frac{3(n-1)}{2} \right\rceil + 1$		$\left\lceil \frac{\sum_{i=1}^d (a_i-1)}{2} \right\rceil + 1$	$\left\lceil \frac{d(n-1)}{2} \right\rceil + 1$	$\lceil \frac{d}{2} \rceil + 1$
$r = 3$???	???	$\lceil \frac{n^2+2n+4}{3} \rceil^*$	S.A. bound	n^2		???	???	$\lceil \frac{d(d+3)}{6} \rceil$