

## A7

subset	type	chamber?	free?	orbit condition?
{}		CHAMBER	(FREE)	(YES)
{1}	$A_1$	CHAMBER	(FREE)	(YES)
{2}	$A_1$	CHAMBER	(FREE)	(YES)
{3}	$A_1$	CHAMBER	(FREE)	(YES)
{4}	$A_1$	CHAMBER	(FREE)	(YES)
{5}	$A_1$	CHAMBER	(FREE)	(YES)
{6}	$A_1$	CHAMBER	(FREE)	(YES)
{7}	$A_1$	CHAMBER	(FREE)	(YES)
{1, 2}	$A_2$	CHAMBER	(FREE)	(YES)
{2, 3}	$A_2$	CHAMBER	(FREE)	(YES)
{3, 4}	$A_2$	CHAMBER	(FREE)	(YES)
{4, 5}	$A_2$	CHAMBER	(FREE)	(YES)
{5, 6}	$A_2$	CHAMBER	(FREE)	(YES)
{6, 7}	$A_2$	CHAMBER	(FREE)	(YES)
{1, 2, 3}	$A_3$	CHAMBER	(FREE)	(YES)
{2, 3, 4}	$A_3$	CHAMBER	(FREE)	(YES)
{3, 4, 5}	$A_3$	CHAMBER	(FREE)	(YES)
{4, 5, 6}	$A_3$	CHAMBER	(FREE)	(YES)
{5, 6, 7}	$A_3$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4}	$A_4$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5}	$A_4$	CHAMBER	(FREE)	(YES)
{3, 4, 5, 6}	$A_4$	CHAMBER	(FREE)	(YES)
{4, 5, 6, 7}	$A_4$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4, 5}	$A_5$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5, 6}	$A_5$	CHAMBER	(FREE)	(YES)
{3, 4, 5, 6, 7}	$A_5$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4, 5, 6}	$A_6$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5, 6, 7}	$A_6$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4, 5, 6, 7}	$A_7$	CHAMBER	(FREE)	(YES)
{1, 3}	$A_1 \times A_1$	no	FREE	no
{1, 4}	$A_1 \times A_1$	no	FREE	no
{1, 5}	$A_1 \times A_1$	no	FREE	no
{1, 6}	$A_1 \times A_1$	no	FREE	no
{1, 7}	$A_1 \times A_1$	no	FREE	no
{2, 4}	$A_1 \times A_1$	no	FREE	no
{2, 5}	$A_1 \times A_1$	no	FREE	no
{2, 6}	$A_1 \times A_1$	no	FREE	no
{2, 7}	$A_1 \times A_1$	no	FREE	no
{3, 5}	$A_1 \times A_1$	no	FREE	no
{3, 6}	$A_1 \times A_1$	no	FREE	no
{3, 7}	$A_1 \times A_1$	no	FREE	no

{4, 6}	$A_1 \times A_1$	no	FREE	no
{4, 7}	$A_1 \times A_1$	no	FREE	no
{5, 7}	$A_1 \times A_1$	no	FREE	no
{1, 2, 4}	$A_1 \times A_2$	no	FREE	no
{1, 2, 5}	$A_1 \times A_2$	no	FREE	no
{1, 2, 6}	$A_1 \times A_2$	no	FREE	no
{1, 2, 7}	$A_1 \times A_2$	no	FREE	no
{1, 3, 4}	$A_1 \times A_2$	no	FREE	no
{1, 4, 5}	$A_1 \times A_2$	no	FREE	no
{1, 5, 6}	$A_1 \times A_2$	no	FREE	no
{1, 6, 7}	$A_1 \times A_2$	no	FREE	no
{2, 3, 5}	$A_1 \times A_2$	no	FREE	no
{2, 3, 6}	$A_1 \times A_2$	no	FREE	no
{2, 3, 7}	$A_1 \times A_2$	no	FREE	no
{2, 4, 5}	$A_1 \times A_2$	no	FREE	no
{2, 5, 6}	$A_1 \times A_2$	no	FREE	no
{2, 6, 7}	$A_1 \times A_2$	no	FREE	no
{3, 4, 6}	$A_1 \times A_2$	no	FREE	no
{3, 4, 7}	$A_1 \times A_2$	no	FREE	no
{3, 5, 6}	$A_1 \times A_2$	no	FREE	no
{3, 6, 7}	$A_1 \times A_2$	no	FREE	no
{4, 5, 7}	$A_1 \times A_2$	no	FREE	no
{4, 6, 7}	$A_1 \times A_2$	no	FREE	no
{1, 2, 3, 5}	$A_1 \times A_3$	no	FREE	no
{1, 2, 3, 6}	$A_1 \times A_3$	no	FREE	no
{1, 2, 3, 7}	$A_1 \times A_3$	no	FREE	no
{1, 3, 4, 5}	$A_1 \times A_3$	no	FREE	no
{1, 4, 5, 6}	$A_1 \times A_3$	no	FREE	no
{1, 5, 6, 7}	$A_1 \times A_3$	no	FREE	no
{2, 3, 4, 6}	$A_1 \times A_3$	no	FREE	no
{2, 3, 4, 7}	$A_1 \times A_3$	no	FREE	no
{2, 4, 5, 6}	$A_1 \times A_3$	no	FREE	no
{2, 5, 6, 7}	$A_1 \times A_3$	no	FREE	no
{3, 4, 5, 7}	$A_1 \times A_3$	no	FREE	no
{3, 5, 6, 7}	$A_1 \times A_3$	no	FREE	no
{1, 2, 3, 4, 6}	$A_1 \times A_4$	no	FREE	no
{1, 2, 3, 4, 7}	$A_1 \times A_4$	no	FREE	no
{1, 3, 4, 5, 6}	$A_1 \times A_4$	no	FREE	no
{1, 4, 5, 6, 7}	$A_1 \times A_4$	no	FREE	no
{2, 3, 4, 5, 7}	$A_1 \times A_4$	no	FREE	no
{2, 4, 5, 6, 7}	$A_1 \times A_4$	no	FREE	no
{1, 2, 3, 4, 5, 7}	$A_1 \times A_5$	no	no	(no)
{1, 3, 4, 5, 6, 7}	$A_1 \times A_5$	no	no	(no)
{1, 2, 4, 5}	$A_2 \times A_2$	no	FREE	no
{1, 2, 5, 6}	$A_2 \times A_2$	no	FREE	no
{1, 2, 6, 7}	$A_2 \times A_2$	no	FREE	no

$\{2, 3, 5, 6\}$	$A_2 \times A_2$	no	FREE	no
$\{2, 3, 6, 7\}$	$A_2 \times A_2$	no	FREE	no
$\{3, 4, 6, 7\}$	$A_2 \times A_2$	no	FREE	no
$\{1, 2, 3, 5, 6\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 3, 6, 7\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 4, 5, 6\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 5, 6, 7\}$	$A_2 \times A_3$	no	FREE	no
$\{2, 3, 4, 6, 7\}$	$A_2 \times A_3$	no	FREE	no
$\{2, 3, 5, 6, 7\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 3, 4, 6, 7\}$	$A_2 \times A_4$	no	FREE	no
$\{1, 2, 4, 5, 6, 7\}$	$A_2 \times A_4$	no	FREE	no
$\{1, 2, 3, 5, 6, 7\}$	$A_3 \times A_3$	no	no	(no)
$\{1, 3, 5\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 3, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 3, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 4, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 4, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 5, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{2, 4, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{2, 4, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{2, 5, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{3, 5, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 2, 4, 6\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 2, 4, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 2, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 4, 6\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 4, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 5, 6\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 6, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 4, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 4, 6, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{2, 3, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{2, 4, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{2, 4, 6, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 2, 3, 5, 7\}$	$A_1 \times A_1 \times A_3$	no	no	(no)
$\{1, 3, 4, 5, 7\}$	$A_1 \times A_1 \times A_3$	no	no	(no)
$\{1, 3, 5, 6, 7\}$	$A_1 \times A_1 \times A_3$	no	no	(no)
$\{1, 2, 4, 5, 7\}$	$A_1 \times A_2 \times A_2$	no	FREE	no
$\{1, 2, 4, 6, 7\}$	$A_1 \times A_2 \times A_2$	no	FREE	no
$\{1, 3, 4, 6, 7\}$	$A_1 \times A_2 \times A_2$	no	FREE	no
$\{1, 3, 5, 7\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(no)

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## B7

subset	type	chamber?	free?	orbit condition?
{}		CHAMBER	(FREE)	(YES)
{1}	$A_1$	CHAMBER	(FREE)	(YES)
{2}	$A_1$	CHAMBER	(FREE)	(YES)
{3}	$A_1$	CHAMBER	(FREE)	(YES)
{4}	$A_1$	CHAMBER	(FREE)	(YES)
{5}	$A_1$	CHAMBER	(FREE)	(YES)
{6}	$A_1$	CHAMBER	(FREE)	(YES)
{7}	$A_1$	CHAMBER	(FREE)	(YES)
{1, 2}	$A_2$	CHAMBER	(FREE)	(YES)
{2, 3}	$A_2$	CHAMBER	(FREE)	(YES)
{3, 4}	$A_2$	CHAMBER	(FREE)	(YES)
{4, 5}	$A_2$	CHAMBER	(FREE)	(YES)
{5, 6}	$A_2$	CHAMBER	(FREE)	(YES)
{1, 2, 3}	$A_3$	CHAMBER	(FREE)	(YES)
{2, 3, 4}	$A_3$	CHAMBER	(FREE)	(YES)
{3, 4, 5}	$A_3$	CHAMBER	(FREE)	(YES)
{4, 5, 6}	$A_3$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4}	$A_4$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5}	$A_4$	CHAMBER	(FREE)	(YES)
{3, 4, 5, 6}	$A_4$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4, 5}	$A_5$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5, 6}	$A_5$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4, 5, 6}	$A_6$	CHAMBER	(FREE)	(YES)
{6, 7}	$B_2$	CHAMBER	(FREE)	(YES)
{5, 6, 7}	$B_3$	CHAMBER	(FREE)	(YES)
{4, 5, 6, 7}	$B_4$	CHAMBER	(FREE)	(YES)
{3, 4, 5, 6, 7}	$B_5$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5, 6, 7}	$B_6$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4, 5, 6, 7}	$B_7$	CHAMBER	(FREE)	(YES)
{1, 3}	$A_1 \times A_1$	no	FREE	no
{1, 4}	$A_1 \times A_1$	no	FREE	no
{1, 5}	$A_1 \times A_1$	no	FREE	no
{1, 6}	$A_1 \times A_1$	no	FREE	no
{1, 7}	$A_1 \times A_1$	no	FREE	YES
{2, 4}	$A_1 \times A_1$	no	FREE	no
{2, 5}	$A_1 \times A_1$	no	FREE	no
{2, 6}	$A_1 \times A_1$	no	FREE	no
{2, 7}	$A_1 \times A_1$	no	FREE	YES
{3, 5}	$A_1 \times A_1$	no	FREE	no
{3, 6}	$A_1 \times A_1$	no	FREE	no
{3, 7}	$A_1 \times A_1$	no	FREE	YES

{4, 6}	$A_1 \times A_1$	no	FREE	no
{4, 7}	$A_1 \times A_1$	no	FREE	YES
{5, 7}	$A_1 \times A_1$	no	FREE	YES
{1, 2, 4}	$A_1 \times A_2$	no	FREE	no
{1, 2, 5}	$A_1 \times A_2$	no	FREE	no
{1, 2, 6}	$A_1 \times A_2$	no	FREE	no
{1, 2, 7}	$A_1 \times A_2$	no	FREE	YES
{1, 3, 4}	$A_1 \times A_2$	no	FREE	no
{1, 4, 5}	$A_1 \times A_2$	no	FREE	no
{1, 5, 6}	$A_1 \times A_2$	no	FREE	no
{2, 3, 5}	$A_1 \times A_2$	no	FREE	no
{2, 3, 6}	$A_1 \times A_2$	no	FREE	no
{2, 3, 7}	$A_1 \times A_2$	no	FREE	YES
{2, 4, 5}	$A_1 \times A_2$	no	FREE	no
{2, 5, 6}	$A_1 \times A_2$	no	FREE	no
{3, 4, 6}	$A_1 \times A_2$	no	FREE	no
{3, 4, 7}	$A_1 \times A_2$	no	FREE	YES
{3, 5, 6}	$A_1 \times A_2$	no	FREE	no
{4, 5, 7}	$A_1 \times A_2$	no	FREE	YES
{1, 2, 3, 5}	$A_1 \times A_3$	no	FREE	no
{1, 2, 3, 6}	$A_1 \times A_3$	no	FREE	no
{1, 2, 3, 7}	$A_1 \times A_3$	no	FREE	YES
{1, 3, 4, 5}	$A_1 \times A_3$	no	FREE	no
{1, 4, 5, 6}	$A_1 \times A_3$	no	FREE	no
{2, 3, 4, 6}	$A_1 \times A_3$	no	FREE	no
{2, 3, 4, 7}	$A_1 \times A_3$	no	FREE	YES
{2, 4, 5, 6}	$A_1 \times A_3$	no	FREE	no
{3, 4, 5, 7}	$A_1 \times A_3$	no	FREE	YES
{1, 2, 3, 4, 6}	$A_1 \times A_4$	no	FREE	no
{1, 2, 3, 4, 7}	$A_1 \times A_4$	no	FREE	YES
{1, 3, 4, 5, 6}	$A_1 \times A_4$	no	FREE	no
{2, 3, 4, 5, 7}	$A_1 \times A_4$	no	FREE	YES
{1, 2, 3, 4, 5, 7}	$A_1 \times A_5$	no	no	(YES)
{1, 6, 7}	$A_1 \times B_2$	no	FREE	no
{2, 6, 7}	$A_1 \times B_2$	no	FREE	no
{3, 6, 7}	$A_1 \times B_2$	no	FREE	no
{4, 6, 7}	$A_1 \times B_2$	no	FREE	no
{1, 5, 6, 7}	$A_1 \times B_3$	no	FREE	no
{2, 5, 6, 7}	$A_1 \times B_3$	no	FREE	no
{3, 5, 6, 7}	$A_1 \times B_3$	no	FREE	no
{1, 4, 5, 6, 7}	$A_1 \times B_4$	no	FREE	no
{2, 4, 5, 6, 7}	$A_1 \times B_4$	no	FREE	no
{1, 3, 4, 5, 6, 7}	$A_1 \times B_5$	no	no	(no)
{1, 2, 4, 5}	$A_2 \times A_2$	no	FREE	no
{1, 2, 5, 6}	$A_2 \times A_2$	no	FREE	no
{2, 3, 5, 6}	$A_2 \times A_2$	no	FREE	no

$\{1, 2, 3, 5, 6\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 4, 5, 6\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 6, 7\}$	$A_2 \times B_2$	no	FREE	no
$\{2, 3, 6, 7\}$	$A_2 \times B_2$	no	FREE	no
$\{3, 4, 6, 7\}$	$A_2 \times B_2$	no	FREE	no
$\{1, 2, 5, 6, 7\}$	$A_2 \times B_3$	no	FREE	no
$\{2, 3, 5, 6, 7\}$	$A_2 \times B_3$	no	FREE	no
$\{1, 2, 4, 5, 6, 7\}$	$A_2 \times B_4$	no	FREE	no
$\{1, 2, 3, 6, 7\}$	$A_3 \times B_2$	no	FREE	no
$\{2, 3, 4, 6, 7\}$	$A_3 \times B_2$	no	FREE	no
$\{1, 2, 3, 5, 6, 7\}$	$A_3 \times B_3$	no	no	(no)
$\{1, 2, 3, 4, 6, 7\}$	$A_4 \times B_2$	no	FREE	no
$\{1, 3, 5\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 3, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 3, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 4, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 4, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 5, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{2, 4, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{2, 4, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{2, 5, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{3, 5, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 2, 4, 6\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 2, 4, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 2, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 4, 6\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 4, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 5, 6\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 4, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{2, 3, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{2, 4, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 2, 3, 5, 7\}$	$A_1 \times A_1 \times A_3$	no	no	(no)
$\{1, 3, 4, 5, 7\}$	$A_1 \times A_1 \times A_3$	no	no	(no)
$\{1, 3, 6, 7\}$	$A_1 \times A_1 \times B_2$	no	FREE	no
$\{1, 4, 6, 7\}$	$A_1 \times A_1 \times B_2$	no	FREE	no
$\{2, 4, 6, 7\}$	$A_1 \times A_1 \times B_2$	no	FREE	no
$\{1, 3, 5, 6, 7\}$	$A_1 \times A_1 \times B_3$	no	no	(no)
$\{1, 2, 4, 5, 7\}$	$A_1 \times A_2 \times A_2$	no	FREE	no
$\{1, 2, 4, 6, 7\}$	$A_1 \times A_2 \times B_2$	no	FREE	no
$\{1, 3, 4, 6, 7\}$	$A_1 \times A_2 \times B_2$	no	FREE	no
$\{1, 3, 5, 7\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(no)

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# C7

subset	type	chamber?	free?	orbit condition?
{}		CHAMBER	(FREE)	(YES)
{1}	$A_1$	CHAMBER	(FREE)	(YES)
{2}	$A_1$	CHAMBER	(FREE)	(YES)
{3}	$A_1$	CHAMBER	(FREE)	(YES)
{4}	$A_1$	CHAMBER	(FREE)	(YES)
{5}	$A_1$	CHAMBER	(FREE)	(YES)
{6}	$A_1$	CHAMBER	(FREE)	(YES)
{7}	$A_1$	CHAMBER	(FREE)	(YES)
{1, 2}	$A_2$	CHAMBER	(FREE)	(YES)
{2, 3}	$A_2$	CHAMBER	(FREE)	(YES)
{3, 4}	$A_2$	CHAMBER	(FREE)	(YES)
{4, 5}	$A_2$	CHAMBER	(FREE)	(YES)
{5, 6}	$A_2$	CHAMBER	(FREE)	(YES)
{1, 2, 3}	$A_3$	CHAMBER	(FREE)	(YES)
{2, 3, 4}	$A_3$	CHAMBER	(FREE)	(YES)
{3, 4, 5}	$A_3$	CHAMBER	(FREE)	(YES)
{4, 5, 6}	$A_3$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4}	$A_4$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5}	$A_4$	CHAMBER	(FREE)	(YES)
{3, 4, 5, 6}	$A_4$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4, 5}	$A_5$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5, 6}	$A_5$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4, 5, 6}	$A_6$	CHAMBER	(FREE)	(YES)
{6, 7}	$B_2$	CHAMBER	(FREE)	(YES)
{5, 6, 7}	$C_3$	CHAMBER	(FREE)	(YES)
{4, 5, 6, 7}	$C_4$	CHAMBER	(FREE)	(YES)
{3, 4, 5, 6, 7}	$C_5$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5, 6, 7}	$C_6$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4, 5, 6, 7}	$C_7$	CHAMBER	(FREE)	(YES)
{1, 3}	$A_1 \times A_1$	no	FREE	no
{1, 4}	$A_1 \times A_1$	no	FREE	no
{1, 5}	$A_1 \times A_1$	no	FREE	no
{1, 6}	$A_1 \times A_1$	no	FREE	no
{1, 7}	$A_1 \times A_1$	no	FREE	YES
{2, 4}	$A_1 \times A_1$	no	FREE	no
{2, 5}	$A_1 \times A_1$	no	FREE	no
{2, 6}	$A_1 \times A_1$	no	FREE	no
{2, 7}	$A_1 \times A_1$	no	FREE	YES
{3, 5}	$A_1 \times A_1$	no	FREE	no
{3, 6}	$A_1 \times A_1$	no	FREE	no
{3, 7}	$A_1 \times A_1$	no	FREE	YES

{4, 6}	$A_1 \times A_1$	no	FREE	no
{4, 7}	$A_1 \times A_1$	no	FREE	YES
{5, 7}	$A_1 \times A_1$	no	FREE	YES
{1, 2, 4}	$A_1 \times A_2$	no	FREE	no
{1, 2, 5}	$A_1 \times A_2$	no	FREE	no
{1, 2, 6}	$A_1 \times A_2$	no	FREE	no
{1, 2, 7}	$A_1 \times A_2$	no	FREE	YES
{1, 3, 4}	$A_1 \times A_2$	no	FREE	no
{1, 4, 5}	$A_1 \times A_2$	no	FREE	no
{1, 5, 6}	$A_1 \times A_2$	no	FREE	no
{2, 3, 5}	$A_1 \times A_2$	no	FREE	no
{2, 3, 6}	$A_1 \times A_2$	no	FREE	no
{2, 3, 7}	$A_1 \times A_2$	no	FREE	YES
{2, 4, 5}	$A_1 \times A_2$	no	FREE	no
{2, 5, 6}	$A_1 \times A_2$	no	FREE	no
{3, 4, 6}	$A_1 \times A_2$	no	FREE	no
{3, 4, 7}	$A_1 \times A_2$	no	FREE	YES
{3, 5, 6}	$A_1 \times A_2$	no	FREE	no
{4, 5, 7}	$A_1 \times A_2$	no	FREE	YES
{1, 2, 3, 5}	$A_1 \times A_3$	no	FREE	no
{1, 2, 3, 6}	$A_1 \times A_3$	no	FREE	no
{1, 2, 3, 7}	$A_1 \times A_3$	no	FREE	YES
{1, 3, 4, 5}	$A_1 \times A_3$	no	FREE	no
{1, 4, 5, 6}	$A_1 \times A_3$	no	FREE	no
{2, 3, 4, 6}	$A_1 \times A_3$	no	FREE	no
{2, 3, 4, 7}	$A_1 \times A_3$	no	FREE	YES
{2, 4, 5, 6}	$A_1 \times A_3$	no	FREE	no
{3, 4, 5, 7}	$A_1 \times A_3$	no	FREE	YES
{1, 2, 3, 4, 6}	$A_1 \times A_4$	no	FREE	no
{1, 2, 3, 4, 7}	$A_1 \times A_4$	no	FREE	YES
{1, 3, 4, 5, 6}	$A_1 \times A_4$	no	FREE	no
{2, 3, 4, 5, 7}	$A_1 \times A_4$	no	FREE	YES
{1, 2, 3, 4, 5, 7}	$A_1 \times A_5$	no	FREE	YES
{1, 6, 7}	$A_1 \times B_2$	no	FREE	no
{2, 6, 7}	$A_1 \times B_2$	no	FREE	no
{3, 6, 7}	$A_1 \times B_2$	no	FREE	no
{4, 6, 7}	$A_1 \times B_2$	no	FREE	no
{1, 5, 6, 7}	$A_1 \times C_3$	no	FREE	no
{2, 5, 6, 7}	$A_1 \times C_3$	no	FREE	no
{3, 5, 6, 7}	$A_1 \times C_3$	no	FREE	no
{1, 4, 5, 6, 7}	$A_1 \times C_4$	no	FREE	no
{2, 4, 5, 6, 7}	$A_1 \times C_4$	no	FREE	no
{1, 3, 4, 5, 6, 7}	$A_1 \times C_5$	no	FREE	no
{1, 2, 4, 5}	$A_2 \times A_2$	no	FREE	no
{1, 2, 5, 6}	$A_2 \times A_2$	no	FREE	no
{2, 3, 5, 6}	$A_2 \times A_2$	no	FREE	no



$\{1, 2, 3, 5, 6\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 4, 5, 6\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 6, 7\}$	$A_2 \times B_2$	no	FREE	no
$\{2, 3, 6, 7\}$	$A_2 \times B_2$	no	FREE	no
$\{3, 4, 6, 7\}$	$A_2 \times B_2$	no	FREE	no
$\{1, 2, 5, 6, 7\}$	$A_2 \times C_3$	no	FREE	no
$\{2, 3, 5, 6, 7\}$	$A_2 \times C_3$	no	FREE	no
$\{1, 2, 4, 5, 6, 7\}$	$A_2 \times C_4$	no	FREE	no
$\{1, 2, 3, 6, 7\}$	$A_3 \times B_2$	no	FREE	no
$\{2, 3, 4, 6, 7\}$	$A_3 \times B_2$	no	FREE	no
$\{1, 2, 3, 5, 6, 7\}$	$A_3 \times C_3$	no	FREE	no
$\{1, 2, 3, 4, 6, 7\}$	$A_4 \times B_2$	no	FREE	no
$\{1, 3, 5\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 3, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 3, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 4, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 4, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 5, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{2, 4, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{2, 4, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{2, 5, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{3, 5, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 2, 4, 6\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 2, 4, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 2, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 4, 6\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 4, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 5, 6\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 4, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{2, 3, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{2, 4, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 2, 3, 5, 7\}$	$A_1 \times A_1 \times A_3$	no	FREE	no
$\{1, 3, 4, 5, 7\}$	$A_1 \times A_1 \times A_3$	no	FREE	no
$\{1, 3, 6, 7\}$	$A_1 \times A_1 \times B_2$	no	FREE	no
$\{1, 4, 6, 7\}$	$A_1 \times A_1 \times B_2$	no	FREE	no
$\{2, 4, 6, 7\}$	$A_1 \times A_1 \times B_2$	no	FREE	no
$\{1, 3, 5, 6, 7\}$	$A_1 \times A_1 \times C_3$	no	FREE	no
$\{1, 2, 4, 5, 7\}$	$A_1 \times A_2 \times A_2$	no	FREE	no
$\{1, 2, 4, 6, 7\}$	$A_1 \times A_2 \times B_2$	no	FREE	no
$\{1, 3, 4, 6, 7\}$	$A_1 \times A_2 \times B_2$	no	FREE	no
$\{1, 3, 5, 7\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	FREE	no

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## D7

subset	type	chamber?	free?	orbit condition?
{}		CHAMBER	(FREE)	(YES)
{1}	$A_1$	CHAMBER	(FREE)	(YES)
{2}	$A_1$	CHAMBER	(FREE)	(YES)
{3}	$A_1$	CHAMBER	(FREE)	(YES)
{4}	$A_1$	CHAMBER	(FREE)	(YES)
{5}	$A_1$	CHAMBER	(FREE)	(YES)
{6}	$A_1$	CHAMBER	(FREE)	(YES)
{7}	$A_1$	CHAMBER	(FREE)	(YES)
{1, 2}	$A_2$	CHAMBER	(FREE)	(YES)
{2, 3}	$A_2$	CHAMBER	(FREE)	(YES)
{3, 4}	$A_2$	CHAMBER	(FREE)	(YES)
{4, 5}	$A_2$	CHAMBER	(FREE)	(YES)
{5, 6}	$A_2$	CHAMBER	(FREE)	(YES)
{5, 7}	$A_2$	CHAMBER	(FREE)	(YES)
{1, 2, 3}	$A_3$	CHAMBER	(FREE)	(YES)
{2, 3, 4}	$A_3$	CHAMBER	(FREE)	(YES)
{3, 4, 5}	$A_3$	CHAMBER	(FREE)	(YES)
{4, 5, 6}	$A_3$	CHAMBER	(FREE)	(YES)
{4, 5, 7}	$A_3$	CHAMBER	(FREE)	(YES)
{5, 6, 7}	$A_3$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4}	$A_4$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5}	$A_4$	CHAMBER	(FREE)	(YES)
{3, 4, 5, 6}	$A_4$	CHAMBER	(FREE)	(YES)
{3, 4, 5, 7}	$A_4$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4, 5}	$A_5$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5, 6}	$A_5$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5, 7}	$A_5$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4, 5, 6}	$A_6$	CHAMBER	(FREE)	(YES)
{1, 2, 3, 4, 5, 7}	$A_6$	CHAMBER	(FREE)	(YES)
{4, 5, 6, 7}	$D_4$	no	no	(no)
{3, 4, 5, 6, 7}	$D_5$	CHAMBER	(FREE)	(YES)
{2, 3, 4, 5, 6, 7}	$D_6$	no	no	(no)
{1, 2, 3, 4, 5, 6, 7}	$D_7$	CHAMBER	(FREE)	(YES)
{1, 3}	$A_1 \times A_1$	no	FREE	no
{1, 4}	$A_1 \times A_1$	no	FREE	no
{1, 5}	$A_1 \times A_1$	no	FREE	no
{1, 6}	$A_1 \times A_1$	no	FREE	no
{1, 7}	$A_1 \times A_1$	no	FREE	no
{2, 4}	$A_1 \times A_1$	no	FREE	no
{2, 5}	$A_1 \times A_1$	no	FREE	no
{2, 6}	$A_1 \times A_1$	no	FREE	no

$\{2, 7\}$	$A_1 \times A_1$	no	FREE	no
$\{3, 5\}$	$A_1 \times A_1$	no	FREE	no
$\{3, 6\}$	$A_1 \times A_1$	no	FREE	no
$\{3, 7\}$	$A_1 \times A_1$	no	FREE	no
$\{4, 6\}$	$A_1 \times A_1$	no	FREE	no
$\{4, 7\}$	$A_1 \times A_1$	no	FREE	no
$\{6, 7\}$	$A_1 \times A_1$	no	no	(no)
$\{1, 2, 4\}$	$A_1 \times A_2$	no	FREE	no
$\{1, 2, 5\}$	$A_1 \times A_2$	no	FREE	no
$\{1, 2, 6\}$	$A_1 \times A_2$	no	FREE	no
$\{1, 2, 7\}$	$A_1 \times A_2$	no	FREE	no
$\{1, 3, 4\}$	$A_1 \times A_2$	no	FREE	no
$\{1, 4, 5\}$	$A_1 \times A_2$	no	FREE	no
$\{1, 5, 6\}$	$A_1 \times A_2$	no	FREE	no
$\{1, 5, 7\}$	$A_1 \times A_2$	no	FREE	no
$\{2, 3, 5\}$	$A_1 \times A_2$	no	FREE	no
$\{2, 3, 6\}$	$A_1 \times A_2$	no	FREE	no
$\{2, 3, 7\}$	$A_1 \times A_2$	no	FREE	no
$\{2, 4, 5\}$	$A_1 \times A_2$	no	FREE	no
$\{2, 5, 6\}$	$A_1 \times A_2$	no	FREE	no
$\{2, 5, 7\}$	$A_1 \times A_2$	no	FREE	no
$\{3, 4, 6\}$	$A_1 \times A_2$	no	FREE	no
$\{3, 4, 7\}$	$A_1 \times A_2$	no	FREE	no
$\{3, 5, 6\}$	$A_1 \times A_2$	no	FREE	no
$\{3, 5, 7\}$	$A_1 \times A_2$	no	FREE	no
$\{1, 2, 3, 5\}$	$A_1 \times A_3$	no	FREE	no
$\{1, 2, 3, 6\}$	$A_1 \times A_3$	no	FREE	no
$\{1, 2, 3, 7\}$	$A_1 \times A_3$	no	FREE	no
$\{1, 3, 4, 5\}$	$A_1 \times A_3$	no	FREE	no
$\{1, 4, 5, 6\}$	$A_1 \times A_3$	no	FREE	no
$\{1, 4, 5, 7\}$	$A_1 \times A_3$	no	FREE	no
$\{1, 5, 6, 7\}$	$A_1 \times A_3$	no	FREE	no
$\{2, 3, 4, 6\}$	$A_1 \times A_3$	no	FREE	no
$\{2, 3, 4, 7\}$	$A_1 \times A_3$	no	FREE	no
$\{2, 4, 5, 6\}$	$A_1 \times A_3$	no	FREE	no
$\{2, 4, 5, 7\}$	$A_1 \times A_3$	no	FREE	no
$\{2, 5, 6, 7\}$	$A_1 \times A_3$	no	FREE	no
$\{3, 5, 6, 7\}$	$A_1 \times A_3$	no	FREE	no
$\{1, 2, 3, 4, 6\}$	$A_1 \times A_4$	no	FREE	no
$\{1, 2, 3, 4, 7\}$	$A_1 \times A_4$	no	FREE	no
$\{1, 3, 4, 5, 6\}$	$A_1 \times A_4$	no	FREE	no
$\{1, 3, 4, 5, 7\}$	$A_1 \times A_4$	no	FREE	no
$\{1, 4, 5, 6, 7\}$	$A_1 \times D_4$	no	no	(no)
$\{2, 4, 5, 6, 7\}$	$A_1 \times D_4$	no	no	(no)
$\{1, 3, 4, 5, 6, 7\}$	$A_1 \times D_5$	no	FREE	no
$\{1, 2, 4, 5\}$	$A_2 \times A_2$	no	FREE	no

$\{1, 2, 5, 6\}$	$A_2 \times A_2$	no	FREE	no
$\{1, 2, 5, 7\}$	$A_2 \times A_2$	no	FREE	no
$\{2, 3, 5, 6\}$	$A_2 \times A_2$	no	FREE	no
$\{2, 3, 5, 7\}$	$A_2 \times A_2$	no	FREE	no
$\{1, 2, 3, 5, 6\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 3, 5, 7\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 4, 5, 6\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 4, 5, 7\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 5, 6, 7\}$	$A_2 \times A_3$	no	FREE	no
$\{2, 3, 5, 6, 7\}$	$A_2 \times A_3$	no	FREE	no
$\{1, 2, 4, 5, 6, 7\}$	$A_2 \times D_4$	no	no	(no)
$\{1, 2, 3, 5, 6, 7\}$	$A_3 \times A_3$	no	FREE	no
$\{1, 3, 5\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 3, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 3, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 4, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 4, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{1, 6, 7\}$	$A_1 \times A_1 \times A_1$	no	no	(no)
$\{2, 4, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{2, 4, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	no
$\{2, 6, 7\}$	$A_1 \times A_1 \times A_1$	no	no	(no)
$\{3, 6, 7\}$	$A_1 \times A_1 \times A_1$	no	no	(no)
$\{4, 6, 7\}$	$A_1 \times A_1 \times A_1$	no	no	(no)
$\{1, 2, 4, 6\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 2, 4, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 2, 6, 7\}$	$A_1 \times A_1 \times A_2$	no	no	(no)
$\{1, 3, 4, 6\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 4, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 5, 6\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{1, 3, 5, 7\}$	$A_1 \times A_1 \times A_2$	no	FREE	no
$\{2, 3, 6, 7\}$	$A_1 \times A_1 \times A_2$	no	no	(no)
$\{3, 4, 6, 7\}$	$A_1 \times A_1 \times A_2$	no	no	(no)
$\{1, 2, 3, 6, 7\}$	$A_1 \times A_1 \times A_3$	no	no	(no)
$\{1, 3, 5, 6, 7\}$	$A_1 \times A_1 \times A_3$	no	FREE	no
$\{2, 3, 4, 6, 7\}$	$A_1 \times A_1 \times A_3$	no	no	(no)
$\{1, 2, 3, 4, 6, 7\}$	$A_1 \times A_1 \times A_4$	no	no	(no)
$\{1, 3, 6, 7\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(no)
$\{1, 4, 6, 7\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(no)
$\{2, 4, 6, 7\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(no)
$\{1, 2, 4, 6, 7\}$	$A_1 \times A_1 \times A_1 \times A_2$	no	no	(no)
$\{1, 3, 4, 6, 7\}$	$A_1 \times A_1 \times A_1 \times A_2$	no	no	(no)

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# D8

subset	type	chamber?	free?	orbit condition?
{}		CHAMBER	(FREE)	(???)
{1}	$A_1$	CHAMBER	(FREE)	(???)
{2}	$A_1$	CHAMBER	(FREE)	(???)
{3}	$A_1$	CHAMBER	(FREE)	(???)
{4}	$A_1$	CHAMBER	(FREE)	(???)
{5}	$A_1$	CHAMBER	(FREE)	(???)
{6}	$A_1$	CHAMBER	(FREE)	(???)
{7}	$A_1$	CHAMBER	(FREE)	(???)
{8}	$A_1$	CHAMBER	(FREE)	(???)
{1, 2}	$A_2$	CHAMBER	(FREE)	(???)
{2, 3}	$A_2$	CHAMBER	(FREE)	(???)
{3, 4}	$A_2$	CHAMBER	(FREE)	(???)
{4, 5}	$A_2$	CHAMBER	(FREE)	(???)
{5, 6}	$A_2$	CHAMBER	(FREE)	(???)
{6, 7}	$A_2$	CHAMBER	(FREE)	(???)
{6, 8}	$A_2$	CHAMBER	(FREE)	(???)
{1, 2, 3}	$A_3$	CHAMBER	(FREE)	(???)
{2, 3, 4}	$A_3$	CHAMBER	(FREE)	(???)
{3, 4, 5}	$A_3$	CHAMBER	(FREE)	(???)
{4, 5, 6}	$A_3$	CHAMBER	(FREE)	(???)
{5, 6, 7}	$A_3$	CHAMBER	(FREE)	(???)
{5, 6, 8}	$A_3$	CHAMBER	(FREE)	(???)
{6, 7, 8}	$A_3$	CHAMBER	(FREE)	(???)
{1, 2, 3, 4}	$A_4$	CHAMBER	(FREE)	(???)
{2, 3, 4, 5}	$A_4$	CHAMBER	(FREE)	(???)
{3, 4, 5, 6}	$A_4$	CHAMBER	(FREE)	(???)
{4, 5, 6, 7}	$A_4$	CHAMBER	(FREE)	(???)
{4, 5, 6, 8}	$A_4$	CHAMBER	(FREE)	(???)
{1, 2, 3, 4, 5}	$A_5$	CHAMBER	(FREE)	(???)
{2, 3, 4, 5, 6}	$A_5$	CHAMBER	(FREE)	(???)
{3, 4, 5, 6, 7}	$A_5$	CHAMBER	(FREE)	(???)
{3, 4, 5, 6, 8}	$A_5$	CHAMBER	(FREE)	(???)
{1, 2, 3, 4, 5, 6}	$A_6$	CHAMBER	(FREE)	(???)
{2, 3, 4, 5, 6, 7}	$A_6$	CHAMBER	(FREE)	(???)
{2, 3, 4, 5, 6, 8}	$A_6$	CHAMBER	(FREE)	(???)
{1, 2, 3, 4, 5, 6, 7}	$A_7$	CHAMBER	(FREE)	(???)
{1, 2, 3, 4, 5, 6, 8}	$A_7$	CHAMBER	(FREE)	(???)
{5, 6, 7, 8}	$D_4$	no	no	(???)
{4, 5, 6, 7, 8}	$D_5$	CHAMBER	(FREE)	(???)
{3, 4, 5, 6, 7, 8}	$D_6$	no	no	(???)
{2, 3, 4, 5, 6, 7, 8}	$D_7$	CHAMBER	(FREE)	(???)

$\{1, 2, 3, 4, 5, 6, 7, 8\}$	$D_8$	CHAMBER	(FREE)	(???)
$\{1, 3\}$	$A_1 \times A_1$	no	FREE	???
$\{1, 4\}$	$A_1 \times A_1$	no	FREE	???
$\{1, 5\}$	$A_1 \times A_1$	no	FREE	???
$\{1, 6\}$	$A_1 \times A_1$	no	FREE	???
$\{1, 7\}$	$A_1 \times A_1$	no	FREE	???
$\{1, 8\}$	$A_1 \times A_1$	no	FREE	???
$\{2, 4\}$	$A_1 \times A_1$	no	FREE	???
$\{2, 5\}$	$A_1 \times A_1$	no	FREE	???
$\{2, 6\}$	$A_1 \times A_1$	no	FREE	???
$\{2, 7\}$	$A_1 \times A_1$	no	FREE	???
$\{2, 8\}$	$A_1 \times A_1$	no	FREE	???
$\{3, 5\}$	$A_1 \times A_1$	no	FREE	???
$\{3, 6\}$	$A_1 \times A_1$	no	FREE	???
$\{3, 7\}$	$A_1 \times A_1$	no	FREE	???
$\{3, 8\}$	$A_1 \times A_1$	no	FREE	???
$\{4, 6\}$	$A_1 \times A_1$	no	FREE	???
$\{4, 7\}$	$A_1 \times A_1$	no	FREE	???
$\{4, 8\}$	$A_1 \times A_1$	no	FREE	???
$\{5, 7\}$	$A_1 \times A_1$	no	FREE	???
$\{5, 8\}$	$A_1 \times A_1$	no	FREE	???
$\{7, 8\}$	$A_1 \times A_1$	no	no	(???)
$\{1, 2, 4\}$	$A_1 \times A_2$	no	FREE	???
$\{1, 2, 5\}$	$A_1 \times A_2$	no	FREE	???
$\{1, 2, 6\}$	$A_1 \times A_2$	no	FREE	???
$\{1, 2, 7\}$	$A_1 \times A_2$	no	FREE	???
$\{1, 2, 8\}$	$A_1 \times A_2$	no	FREE	???
$\{1, 3, 4\}$	$A_1 \times A_2$	no	FREE	???
$\{1, 4, 5\}$	$A_1 \times A_2$	no	FREE	???
$\{1, 5, 6\}$	$A_1 \times A_2$	no	FREE	???
$\{1, 6, 7\}$	$A_1 \times A_2$	no	FREE	???
$\{1, 6, 8\}$	$A_1 \times A_2$	no	FREE	???
$\{2, 3, 5\}$	$A_1 \times A_2$	no	FREE	???
$\{2, 3, 6\}$	$A_1 \times A_2$	no	FREE	???
$\{2, 3, 7\}$	$A_1 \times A_2$	no	FREE	???
$\{2, 3, 8\}$	$A_1 \times A_2$	no	FREE	???
$\{2, 4, 5\}$	$A_1 \times A_2$	no	FREE	???
$\{2, 5, 6\}$	$A_1 \times A_2$	no	FREE	???
$\{2, 6, 7\}$	$A_1 \times A_2$	no	FREE	???
$\{2, 6, 8\}$	$A_1 \times A_2$	no	FREE	???
$\{3, 4, 6\}$	$A_1 \times A_2$	no	FREE	???
$\{3, 4, 7\}$	$A_1 \times A_2$	no	FREE	???
$\{3, 4, 8\}$	$A_1 \times A_2$	no	FREE	???
$\{3, 5, 6\}$	$A_1 \times A_2$	no	FREE	???
$\{3, 6, 7\}$	$A_1 \times A_2$	no	FREE	???
$\{3, 6, 8\}$	$A_1 \times A_2$	no	FREE	???

$\{4, 5, 7\}$	$A_1 \times A_2$	no	FREE	???
$\{4, 5, 8\}$	$A_1 \times A_2$	no	FREE	???
$\{4, 6, 7\}$	$A_1 \times A_2$	no	FREE	???
$\{4, 6, 8\}$	$A_1 \times A_2$	no	FREE	???
$\{1, 2, 3, 5\}$	$A_1 \times A_3$	no	FREE	???
$\{1, 2, 3, 6\}$	$A_1 \times A_3$	no	FREE	???
$\{1, 2, 3, 7\}$	$A_1 \times A_3$	no	FREE	???
$\{1, 2, 3, 8\}$	$A_1 \times A_3$	no	FREE	???
$\{1, 3, 4, 5\}$	$A_1 \times A_3$	no	FREE	???
$\{1, 4, 5, 6\}$	$A_1 \times A_3$	no	FREE	???
$\{1, 5, 6, 7\}$	$A_1 \times A_3$	no	FREE	???
$\{1, 5, 6, 8\}$	$A_1 \times A_3$	no	FREE	???
$\{1, 6, 7, 8\}$	$A_1 \times A_3$	no	FREE	???
$\{2, 3, 4, 6\}$	$A_1 \times A_3$	no	FREE	???
$\{2, 3, 4, 7\}$	$A_1 \times A_3$	no	FREE	???
$\{2, 3, 4, 8\}$	$A_1 \times A_3$	no	FREE	???
$\{2, 4, 5, 6\}$	$A_1 \times A_3$	no	FREE	???
$\{2, 5, 6, 7\}$	$A_1 \times A_3$	no	FREE	???
$\{2, 5, 6, 8\}$	$A_1 \times A_3$	no	FREE	???
$\{2, 6, 7, 8\}$	$A_1 \times A_3$	no	FREE	???
$\{3, 4, 5, 7\}$	$A_1 \times A_3$	no	FREE	???
$\{3, 4, 5, 8\}$	$A_1 \times A_3$	no	FREE	???
$\{3, 5, 6, 7\}$	$A_1 \times A_3$	no	FREE	???
$\{3, 5, 6, 8\}$	$A_1 \times A_3$	no	FREE	???
$\{3, 6, 7, 8\}$	$A_1 \times A_3$	no	FREE	???
$\{4, 6, 7, 8\}$	$A_1 \times A_3$	no	FREE	???
$\{1, 2, 3, 4, 6\}$	$A_1 \times A_4$	no	FREE	???
$\{1, 2, 3, 4, 7\}$	$A_1 \times A_4$	no	FREE	???
$\{1, 2, 3, 4, 8\}$	$A_1 \times A_4$	no	FREE	???
$\{1, 3, 4, 5, 6\}$	$A_1 \times A_4$	no	FREE	???
$\{1, 4, 5, 6, 7\}$	$A_1 \times A_4$	no	FREE	???
$\{1, 4, 5, 6, 8\}$	$A_1 \times A_4$	no	FREE	???
$\{2, 3, 4, 5, 7\}$	$A_1 \times A_4$	no	FREE	???
$\{2, 3, 4, 5, 8\}$	$A_1 \times A_4$	no	FREE	???
$\{2, 4, 5, 6, 7\}$	$A_1 \times A_4$	no	FREE	???
$\{2, 4, 5, 6, 8\}$	$A_1 \times A_4$	no	FREE	???
$\{1, 2, 3, 4, 5, 7\}$	$A_1 \times A_5$	no	no	(???)
$\{1, 2, 3, 4, 5, 8\}$	$A_1 \times A_5$	no	no	(???)
$\{1, 3, 4, 5, 6, 7\}$	$A_1 \times A_5$	no	no	(???)
$\{1, 3, 4, 5, 6, 8\}$	$A_1 \times A_5$	no	no	(???)
$\{1, 5, 6, 7, 8\}$	$A_1 \times D_4$	no	no	(???)
$\{2, 5, 6, 7, 8\}$	$A_1 \times D_4$	no	no	(???)
$\{3, 5, 6, 7, 8\}$	$A_1 \times D_4$	no	no	(???)
$\{1, 4, 5, 6, 7, 8\}$	$A_1 \times D_5$	no	FREE	???
$\{2, 4, 5, 6, 7, 8\}$	$A_1 \times D_5$	no	FREE	???
$\{1, 3, 4, 5, 6, 7, 8\}$	$A_1 \times D_6$	no	no	(???)

$\{1, 2, 4, 5\}$	$A_2 \times A_2$	no	FREE	???
$\{1, 2, 5, 6\}$	$A_2 \times A_2$	no	FREE	???
$\{1, 2, 6, 7\}$	$A_2 \times A_2$	no	FREE	???
$\{1, 2, 6, 8\}$	$A_2 \times A_2$	no	FREE	???
$\{2, 3, 5, 6\}$	$A_2 \times A_2$	no	FREE	???
$\{2, 3, 6, 7\}$	$A_2 \times A_2$	no	FREE	???
$\{2, 3, 6, 8\}$	$A_2 \times A_2$	no	FREE	???
$\{3, 4, 6, 7\}$	$A_2 \times A_2$	no	FREE	???
$\{3, 4, 6, 8\}$	$A_2 \times A_2$	no	FREE	???
$\{1, 2, 3, 5, 6\}$	$A_2 \times A_3$	no	FREE	???
$\{1, 2, 3, 6, 7\}$	$A_2 \times A_3$	no	FREE	???
$\{1, 2, 3, 6, 8\}$	$A_2 \times A_3$	no	FREE	???
$\{1, 2, 4, 5, 6\}$	$A_2 \times A_3$	no	FREE	???
$\{1, 2, 5, 6, 7\}$	$A_2 \times A_3$	no	FREE	???
$\{1, 2, 5, 6, 8\}$	$A_2 \times A_3$	no	FREE	???
$\{1, 2, 6, 7, 8\}$	$A_2 \times A_3$	no	FREE	???
$\{2, 3, 4, 6, 7\}$	$A_2 \times A_3$	no	FREE	???
$\{2, 3, 4, 6, 8\}$	$A_2 \times A_3$	no	FREE	???
$\{2, 3, 5, 6, 7\}$	$A_2 \times A_3$	no	FREE	???
$\{2, 3, 5, 6, 8\}$	$A_2 \times A_3$	no	FREE	???
$\{2, 3, 6, 7, 8\}$	$A_2 \times A_3$	no	FREE	???
$\{3, 4, 6, 7, 8\}$	$A_2 \times A_3$	no	FREE	???
$\{1, 2, 3, 4, 6, 7\}$	$A_2 \times A_4$	no	FREE	???
$\{1, 2, 3, 4, 6, 8\}$	$A_2 \times A_4$	no	FREE	???
$\{1, 2, 4, 5, 6, 7\}$	$A_2 \times A_4$	no	FREE	???
$\{1, 2, 4, 5, 6, 8\}$	$A_2 \times A_4$	no	FREE	???
$\{1, 2, 5, 6, 7, 8\}$	$A_2 \times D_4$	no	no	(???)
$\{2, 3, 5, 6, 7, 8\}$	$A_2 \times D_4$	no	no	(???)
$\{1, 2, 4, 5, 6, 7, 8\}$	$A_2 \times D_5$	no	FREE	???
$\{1, 2, 3, 5, 6, 7\}$	$A_3 \times A_3$	no	no	(???)
$\{1, 2, 3, 5, 6, 8\}$	$A_3 \times A_3$	no	no	(???)
$\{1, 2, 3, 6, 7, 8\}$	$A_3 \times A_3$	no	FREE	???
$\{2, 3, 4, 6, 7, 8\}$	$A_3 \times A_3$	no	FREE	???
$\{1, 2, 3, 4, 6, 7, 8\}$	$A_3 \times A_4$	no	FREE	???
$\{1, 2, 3, 5, 6, 7, 8\}$	$A_3 \times D_4$	no	no	(???)
$\{1, 3, 5\}$	$A_1 \times A_1 \times A_1$	no	FREE	???
$\{1, 3, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	???
$\{1, 3, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	???
$\{1, 3, 8\}$	$A_1 \times A_1 \times A_1$	no	FREE	???
$\{1, 4, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	???
$\{1, 4, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	???
$\{1, 4, 8\}$	$A_1 \times A_1 \times A_1$	no	FREE	???
$\{1, 5, 7\}$	$A_1 \times A_1 \times A_1$	no	FREE	???
$\{1, 5, 8\}$	$A_1 \times A_1 \times A_1$	no	FREE	???
$\{1, 7, 8\}$	$A_1 \times A_1 \times A_1$	no	no	(???)
$\{2, 4, 6\}$	$A_1 \times A_1 \times A_1$	no	FREE	???



{2, 4, 7}	$A_1 \times A_1 \times A_1$	no	FREE	???
{2, 4, 8}	$A_1 \times A_1 \times A_1$	no	FREE	???
{2, 5, 7}	$A_1 \times A_1 \times A_1$	no	FREE	???
{2, 5, 8}	$A_1 \times A_1 \times A_1$	no	FREE	???
{2, 7, 8}	$A_1 \times A_1 \times A_1$	no	no	(???)
{3, 5, 7}	$A_1 \times A_1 \times A_1$	no	FREE	???
{3, 5, 8}	$A_1 \times A_1 \times A_1$	no	FREE	???
{3, 7, 8}	$A_1 \times A_1 \times A_1$	no	no	(???)
{4, 7, 8}	$A_1 \times A_1 \times A_1$	no	no	(???)
{5, 7, 8}	$A_1 \times A_1 \times A_1$	no	no	(???)
{1, 2, 4, 6}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 2, 4, 7}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 2, 4, 8}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 2, 5, 7}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 2, 5, 8}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 2, 7, 8}	$A_1 \times A_1 \times A_2$	no	no	(???)
{1, 3, 4, 6}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 3, 4, 7}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 3, 4, 8}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 3, 5, 6}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 3, 6, 7}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 3, 6, 8}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 4, 5, 7}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 4, 5, 8}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 4, 6, 7}	$A_1 \times A_1 \times A_2$	no	FREE	???
{1, 4, 6, 8}	$A_1 \times A_1 \times A_2$	no	FREE	???
{2, 3, 5, 7}	$A_1 \times A_1 \times A_2$	no	FREE	???
{2, 3, 5, 8}	$A_1 \times A_1 \times A_2$	no	FREE	???
{2, 3, 7, 8}	$A_1 \times A_1 \times A_2$	no	no	(???)
{2, 4, 5, 7}	$A_1 \times A_1 \times A_2$	no	FREE	???
{2, 4, 5, 8}	$A_1 \times A_1 \times A_2$	no	FREE	???
{2, 4, 6, 7}	$A_1 \times A_1 \times A_2$	no	FREE	???
{2, 4, 6, 8}	$A_1 \times A_1 \times A_2$	no	FREE	???
{3, 4, 7, 8}	$A_1 \times A_1 \times A_2$	no	no	(???)
{4, 5, 7, 8}	$A_1 \times A_1 \times A_2$	no	no	(???)
{1, 2, 3, 5, 7}	$A_1 \times A_1 \times A_3$	no	no	(???)
{1, 2, 3, 5, 8}	$A_1 \times A_1 \times A_3$	no	no	(???)
{1, 2, 3, 7, 8}	$A_1 \times A_1 \times A_3$	no	no	(???)
{1, 3, 4, 5, 7}	$A_1 \times A_1 \times A_3$	no	no	(???)
{1, 3, 4, 5, 8}	$A_1 \times A_1 \times A_3$	no	no	(???)
{1, 3, 5, 6, 7}	$A_1 \times A_1 \times A_3$	no	no	(???)
{1, 3, 5, 6, 8}	$A_1 \times A_1 \times A_3$	no	no	(???)
{1, 3, 6, 7, 8}	$A_1 \times A_1 \times A_3$	no	FREE	???
{1, 4, 6, 7, 8}	$A_1 \times A_1 \times A_3$	no	FREE	???
{2, 3, 4, 7, 8}	$A_1 \times A_1 \times A_3$	no	no	(???)
{2, 4, 6, 7, 8}	$A_1 \times A_1 \times A_3$	no	FREE	???

$\{3, 4, 5, 7, 8\}$	$A_1 \times A_1 \times A_3$	no	no	(???)
$\{1, 2, 3, 4, 7, 8\}$	$A_1 \times A_1 \times A_4$	no	no	(???)
$\{2, 3, 4, 5, 7, 8\}$	$A_1 \times A_1 \times A_4$	no	no	(???)
$\{1, 2, 3, 4, 5, 7, 8\}$	$A_1 \times A_1 \times A_5$	no	no	(???)
$\{1, 3, 5, 6, 7, 8\}$	$A_1 \times A_1 \times D_4$	no	no	(???)
$\{1, 2, 4, 5, 7\}$	$A_1 \times A_2 \times A_2$	no	FREE	???
$\{1, 2, 4, 5, 8\}$	$A_1 \times A_2 \times A_2$	no	FREE	???
$\{1, 2, 4, 6, 7\}$	$A_1 \times A_2 \times A_2$	no	FREE	???
$\{1, 2, 4, 6, 8\}$	$A_1 \times A_2 \times A_2$	no	FREE	???
$\{1, 3, 4, 6, 7\}$	$A_1 \times A_2 \times A_2$	no	FREE	???
$\{1, 3, 4, 6, 8\}$	$A_1 \times A_2 \times A_2$	no	FREE	???
$\{1, 2, 4, 6, 7, 8\}$	$A_1 \times A_2 \times A_3$	no	FREE	???
$\{1, 3, 4, 6, 7, 8\}$	$A_1 \times A_2 \times A_3$	no	FREE	???
$\{1, 3, 5, 7\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(???)
$\{1, 3, 5, 8\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(???)
$\{1, 3, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(???)
$\{1, 4, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(???)
$\{1, 5, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(???)
$\{2, 4, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(???)
$\{2, 5, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(???)
$\{3, 5, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_1$	no	no	(???)
$\{1, 2, 4, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_2$	no	no	(???)
$\{1, 2, 5, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_2$	no	no	(???)
$\{1, 3, 4, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_2$	no	no	(???)
$\{1, 4, 5, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_2$	no	no	(???)
$\{2, 3, 5, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_2$	no	no	(???)
$\{2, 4, 5, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_2$	no	no	(???)
$\{1, 2, 3, 5, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_3$	no	no	(???)
$\{1, 3, 4, 5, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_3$	no	no	(???)
$\{1, 2, 4, 5, 7, 8\}$	$A_1 \times A_1 \times A_2 \times A_2$	no	no	(???)
$\{1, 3, 5, 7, 8\}$	$A_1 \times A_1 \times A_1 \times A_1 \times A_1$	no	no	(???)

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