

# Math 113 - Wallpaper patterns

	Name	Example	Description (in addition to translations)	Handout
no rotations	1	R R R R R R R R	no symmetries	
	m	⋮ ⋮ ⋮ R R R	one reflection	
	g	R ⋮ R ⋮ R ⋮ R ⋮	one glide reflection	J
	mg	⋮ ⋮ ⋮ R R R R R R	one reflection and one glide reflection along parallel lines	A
180° rotations	2	S S S S S	only 180° rotations	
	2mm	R R R R ⋮ ⋮ ⋮ ⋮	two perpendicular reflections, rotation only where reflection lines meet	L
	2m̄		two perpendicular reflections, with a rotation around a point not on a reflection line	
	2mg		one reflection and one glide reflection, perpendicular	B
	2gg		two perpendicular glide reflections	E
90° rotations	4		only 90° rotations	
	4mm		two pairs of perpendicular reflections --- and ---	M
	4gm		one pair of perpendicular reflections and one pair of perpendicular glide reflections	C, D

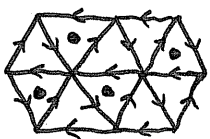
Name

Example

Description

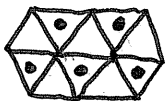
120°  
rotations

3



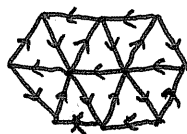
only 120°  
rotations

3mf



reflection across  
line passing  
through face

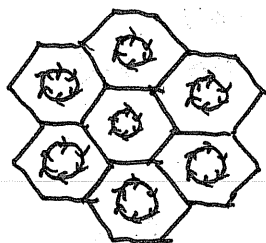
3me



reflection across  
line passing  
through edge

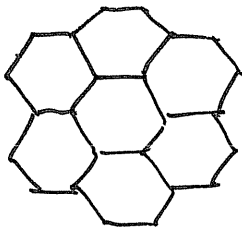
60°  
rotations

6



only 60°  
rotations

6m



two sets of  
three reflection  
lines meeting at  
60° angle:

