

- (b) On each pattern, indicate any reflection axes by drawing solid lines and any glide axes by drawing broken or dotted lines. Again, use a colour other than black. (Two successive axes of each type present, in each possible direction, are sufficient.) [5]
- (c) (i) Pattern *W* has a rotation centre at the centre of each triangle; what order is it? 3 [1]
- (ii) Pattern *W* has a rotation centre at the centre of each hexagon; what order is it? 3 [1]
- (iii) Pattern *X* has a rotation centre at the centre of each tile; what order is it? 2 [1]
- (iv) Pattern *X* has a rotation centre at each vertex (i.e. each meeting point of more than two tiles); what order is it? 4 [1]
- (d) Apply the algorithm described in the audio tape for *Unit GE4*, to identify the type of each of the patterns *W* and *X*. You must indicate clearly each step in the algorithm as you apply it. [6]
- (e) Explain carefully why, in any wallpaper pattern whose symmetry group contains rotations of order 3 or 6, there is always a glide axis parallel to any reflection axis. [4]
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