

parastichies you would expect to see.

3. The following questions are about symmetries of plane figures. Make sure you explain your answers using diagrams.

(a) Suppose you notice that a particular figure is symmetric under a 120° rotation. What other rotational symmetries must it have? Draw a figure with these symmetries and state its symmetry group.

(b) Suppose you notice that a particular figure is symmetric under a 160° rotation. What other rotational symmetries must it have? Draw a figure with these symmetries and state its symmetry group.

(c) Suppose you notice that a figure has two lines of reflection symmetry. If the angle between the two lines of reflection symmetry is 60° , how many other lines of reflection symmetry must there be. Must there be any rotational symmetries? If so, how many, if not why not? Draw a figure with these symmetries and state its symmetry group.

4. Describe all the symmetries of each of the following border patterns. Mark roto-centers or lines of reflection on the borders and use arrows to indicate glide and translation symmetries when appropriate. Finally, label the patterns according to the crystallography classification.

