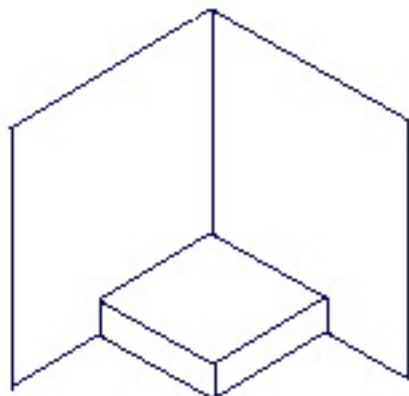## Hinged Mirrors and Pattern Blocks

1. Place a square between the two hinged mirrors so that they form a 90° angle.
   How many squares do you see? (Including the original.)

Square pattern block between hinged mirrors.
Reflections not shown.

2. Place a triangle between the two hinged mirrors so that they form a 60° angle.
   How many triangles do you see?
3. Place a hexagon between the two hinged mirrors so that they form a 120° angle.
   How many hexagons do you see?
4. Place the tan rhombus between the two mirrors so that they form a 30° angle.
   How many rhombuses do you see?
5. Fill the table below.

Shape	Angle between mirrors	Number of shapes
Tan rhombus		
Equilateral triangle		
Square		
Regular hexagon		

What do you notice about the values in the table?

6. Place the other pattern block shapes between the mirrors in different positions. For example, place the blue rhombus to form first a 60° angle between the mirrors, and then to form a 120° angle.
   Is the number of shapes consistent with the table above?
7. Express the relation between the size of the angle and the number of shapes with an equation.
8. Now place the tan rhombus between the two mirrors and open the angle so that you see exactly five rhombuses (including the original).
   What is the angle formed by the mirrors?