Some shapes have lines of symmetry. Tina uses a mirror to check for symmetry in shapes. She places the mirror across half the shape and checks to see if the half reflected in the mirror makes her picture 'whole' again.

Tina also checks if a shape has a line of symmetry by cutting the shape out and then folding it. If the halves of the shapes on either side of the fold match exactly, Tina knows that the fold shows a line of symmetry.

1. Complete the picture so that the dotted line is a line of symmetry.

2. The shapes on either side of the mirror line below are almost congruent. Add one square so that the two are congruent. Then mark P on the other side of the mirror line.
3. The dotted lines are lines of symmetry for a figure. Draw the missing parts of the figure. 
HINT: Use the lines as mirror lines.

a) 

b) 

c) 

d) 

e) 

f) 

4. How to find the order of rotational symmetry of a square:

**Step 1:**
Mark any corner of the square.

**Step 2:**
Turn the square until it fits into itself. Repeat.

\[
\begin{array}{cc}
\text{\(\frac{1}{4}\) turn} & \text{\(\frac{1}{2}\) turn} \\
\text{\(\frac{3}{4}\) turn} & \text{full turn}
\end{array}
\]

**NOTE:**
The order of rotational symmetry is the number of times a shape fits into itself within one full rotation.

We stop now, since the marked corner is back where it started.

You can turn the square 4 ways to fit into itself, so the order of rotational symmetry of a square is 4.

What is the order of rotational symmetry of the following figures?

a) 

b) 

c) 

d) 

e) 

f) 

g) 

h) 

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[Logo: jump math]
5. Shade two shapes with exactly one line of symmetry.

6. a) Sort the shapes according to the number of lines of symmetry they have.

<table>
<thead>
<tr>
<th>A</th>
<th>C</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<tbody>
<tr>
<td>B</td>
<td>D</td>
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<table>
<thead>
<tr>
<th>Less than two lines of symmetry</th>
<th>More than two lines of symmetry</th>
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   b) Which two figures above have no lines of symmetry? _____ and _____

7. Draw all the lines of symmetry for each regular shape below. Then complete the chart provided.

   NOTE: "Regular" means having all angles and sides equal.

   Equilateral Triangle
   Square
   Regular Pentagon
   Regular Hexagon

   a) Figure | Triangle | Square | Pentagon | Hexagon
          | Number of edges |          |          |          |
          | Number of lines of symmetry |          |          |          |

   b) Describe any relation you see between lines of symmetry and the number of edges.

   c) Find the order of rotational symmetry for each shape.
   Describe any patterns you see.

8. Brenda says the line shown is a line of symmetry:
   Is she correct? Explain.

9. On grid paper, draw a figure with exactly two lines of symmetry.
   Explain how you know there are exactly two lines of symmetry.