Complete these charts to discover the polyhedron patterns.

<table>
<thead>
<tr>
<th>Base’s Number of Sides</th>
<th>Triangular Prism</th>
<th>Rectangular Prism</th>
<th>Pentagonal Prism</th>
<th>Hexagonal Prism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Faces</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vertices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Edges</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PRISM PATTERNS:** If \( n \) = the number of sides on the base of a prism, what three expressions show that prism’s number of faces, vertices, and edges?

<table>
<thead>
<tr>
<th>Base’s Number of Sides</th>
<th>Triangular Pyramid</th>
<th>Rectangular Pyramid</th>
<th>Pentagonal Pyramid</th>
<th>Hexagonal Pyramid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Faces</strong></td>
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<tr>
<td><strong>Vertices</strong></td>
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**PYRAMID PATTERNS:** If \( n \) = the number of sides on the base of a pyramid, what three expressions show that pyramid’s number of faces, vertices, and edges?
**Polyhedron Patterns**

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<table>
<thead>
<tr>
<th>Prism Type</th>
<th>Triangular Prism</th>
<th>Rectangular Prism</th>
<th>Pentagonal Prism</th>
<th>Hexagonal Prism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base's Number of Sides</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Faces</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Vertices</td>
<td>9</td>
<td>12</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>Edges</td>
<td>9</td>
<td>12</td>
<td>15</td>
<td>18</td>
</tr>
</tbody>
</table>

**PRISM PATTERNS:** If \( n \) is the number of sides on the base of a prism, what three expressions show that prism's number of faces, vertices, and edges?

- \( \text{faces} = n + 2 \)
- \( \text{vertices} = 2n \)
- \( \text{edges} = 3n \)

**PYRAMID PATTERNS:** If \( n \) is the number of sides on the base of a pyramid, what three expressions show that pyramid's number of faces, vertices, and edges?

- \( \text{faces} = n + 1 \)
- \( \text{vertices} = n + 1 \)
- \( \text{edges} = 2n \)

---

**Three-Dimensional Figures**

Write the correct answer.

1. Pamela folded an origami figure that has 5 faces, 8 edges, and 5 vertices. What kind of three-dimensional figure could Pamela have created?
   - A rectangular or square pyramid
   - A triangular pyramid

2. Look at your classroom chalkboard. What kind of three-dimensional figure is the board eraser? What kind of three-dimensional figure is the chalk?
   - Eraser: rectangular prism
   - Chalk: cylinder

3. If you cut a cylinder in half between its two bases, what two three-dimensional figures are formed?
   - 2 cylinders
   - A cone and a circular disk

4. You have two hexagons. How many rectangles do you need to create a hexagonal prism?
   - 6 rectangles
   - 8 rectangles

5. All four of the faces of a paperweight are triangles. Is this enough information to classify this three-dimensional figure? Explain.
   - Yes, it is a triangular pyramid.
   - No, it could be any kind of pyramid.

6. Paulo says that if you know the number of faces a pyramid has, you also know how many vertices it has. Do you agree? Explain.
   - Yes; A pyramid always has the same number of faces and vertices.
   - No; a pyramid can have different numbers of faces and vertices.

7. How is a triangular prism different from a triangular pyramid?
   - A: The prism has 2 bases.
   - B: The pyramid has 2 bases.
   - C: All of the prism's faces are triangles.
   - D: The pyramid has 5 faces.

8. Which of these statements is true about a cylinder?
   - F: It has 2 circular bases.
   - G: It has a curved lateral surface.
   - H: It is a solid figure.
   - J: It is a polyhedron.

9. A museum needs to ship a sculpture that has a curved lateral surface and one flat circular base. In what shape should they mail the sculpture?
   - A: cone
   - C: cylinder
   - B: cube
   - D: triangular prism

10. A glass prism reflects white light as a multicolored band of light called a spectrum. The prism has 5 glass faces with 9 edges and 6 vertices. What kind of prism is it?
    - F: cube
    - H: triangular pyramid
    - G: cone
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