

Summary

- Patterns, also known as stretchouts, are two-dimensional representations of objects created to aid in many different applications.
- Patterns are developed using either parallel line development or radial line development.
- Hems, edges, and seams may be added in pattern development of sheet metal products.
- Different techniques are used to create patterns for prisms, cylinders, pyramids, and cones.

Test Your Knowledge

Answer the following questions using the information provided in this chapter.

1. Define *pattern*.
2. Patterns are also known as _____.
3. The process in which the fabrication of materials is derived directly from production drawings is called _____.
4. Explain the difference between parallel line development and radial line development.
5. Prisms are developed using what type of pattern development method?
6. What are *hems*?
7. Irregular curves in patterns are drawn using a(n) _____.
8. Briefly describe how to develop a pattern for a cylinder.
9. A(n) _____ is when two geometric surfaces meet or cross each other.

Applying Your Knowledge (optional)

1. Obtain illustrations of products that require pattern development in their manufacture. They may be obtained from discarded magazines or the Internet. Label each product with the method used to develop its pattern (parallel line development or radial line development).
2. Using a discarded product such as a paper cup, milk carton, or snack food package, carefully unfold the product. Draw a full-size pattern for the product.

STEM Activities (optional)

1. **Engineering:** Referring to Problem 14-20 in the *Drawing Problems* section of this chapter, create the patterns that would be necessary to manufacture the sheet metal tool box. Be sure to allow extra material (1/4") for the necessary seams and hems. The box should be 14" long, 6" wide, and 2-1/2" high when assembled. The inclined doors may be designed at any appropriate angle. Use your own dimensions for all other parts in the design. Create a list of materials and calculate the cost of the box if it were to be manufactured out of 26-gage galvanized sheet metal. Include the two 14" pieces of continuous hinge required for the doors and the handle in your calculations. Acquire material costs either from your instructor or a local metal supplier. If you have a metal shop available and have the necessary metalworking expertise, manufacture the box.