

Surface Development

Instructions

Answer all questions. Choose the best answer for multiple-choice and true/false questions.
Answer the written-response questions in complete sentences.

1. What is surface development? *(1 point)*
 - a. A method for calculating the volume of a solid
 - b. A flat layout that represents a 3D object
 - c. The process of assembling 3D shapes
 - d. A method for finding the height of a frustum
2. Which industry heavily relies on surface development? *(1 point)*
 - a. Agriculture
 - b. Sheet Metal Industry
 - c. Textile Industry
 - d. Automotive Repairs
3. Why is surface development important in manufacturing? *(1 point)*
 - a. It helps reduce waste and ensures precision.
 - b. It increases the weight of the product.
 - c. It eliminates the need for templates.
 - d. It simplifies the painting process.
4. A frustum is best described as: *(1 point)*
 - a. A solid with a square base and perpendicular sides.
 - b. A solid with the top cut off parallel to the base.
 - c. A solid that has no edges or vertices.
 - d. A solid made of multiple materials.
5. Which of the following is a common use of surface development in the sheet metal industry? *(1 point)*
 - a. Creating designs for textiles
 - b. Making flat patterns for air ducts
 - c. Calculating the weight of a metal rod
 - d. Building wooden furniture

6. Surface development is only used for artistic purposes. *(1 point)*
- a. True
 - b. False
7. An oblique solid has sides that are not perpendicular to its base. *(1 point)*
- a. True
 - b. False
8. Surface development reduces material waste in manufacturing. *(1 point)*
- a. True
 - b. False
9. A cone cannot be developed into a flat layout. *(1 point)*
- a. True
 - b. False
10. Templates created from surface development ensure components fit accurately. *(1 point)*
- a. True
 - b. False
11. Explain why surface development is essential in the sheet metal industry.
Provide at least two reasons and include examples in your explanation. *(4 points)*

12. Describe one real-world product or structure you've seen that likely used surface development during manufacturing.

Explain why accurate surface development was important for that product or structure. *(4 points)*

13. Explain the difference between the radial method and the parallel method of surface development. Give one example for each method. *(4 points)*
