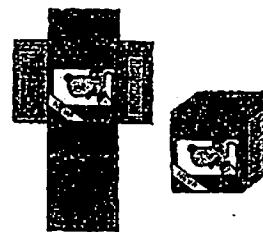




SKILL 15: Surface Area of Prisms

The **surface area (SA)** of a prism is the sum of the areas of all of its faces. A **net** is a flat pattern that can be folded into a solid. To find the surface area of a prism such as this rectangular prism, unfold it into a net of polygons and then add their areas.

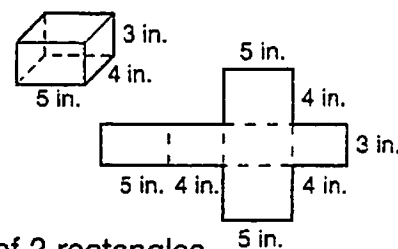
Like the area for a single polygon, surface area is measured in square units, such as cm^2 .



Example

Find the surface area of the prism.

The net consists of two rectangles with lengths of 5 in. and widths of 4 in., two 4 in.-by-3 in. rectangles, and two 5 in.-by-3 in. rectangles.



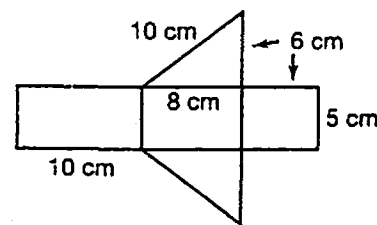
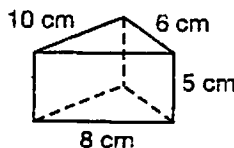
SA = area of 2 rectangles + area of 2 rectangles + area of 2 rectangles

$$\begin{aligned} \text{SA} &= 2 \times (5 \times 4) & + 2 \times (4 \times 3) & + 2 \times (5 \times 3) \\ &= 2 \times (20) & + 2 \times (12) & + 2 \times (15) \\ &= 40 & + 24 & + 30 \\ &= 94 \text{ in}^2 \end{aligned}$$

The surface area of the rectangular prism is 94 in^2 .

Guided Practice

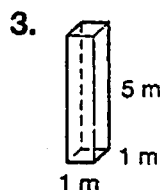
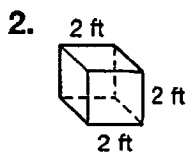
Find the surface area of the prism.



1. a. Which polygons make up the net?

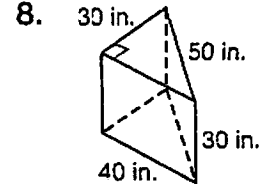
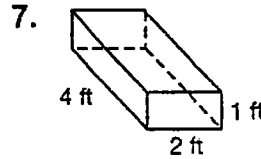
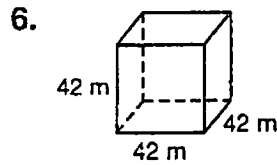
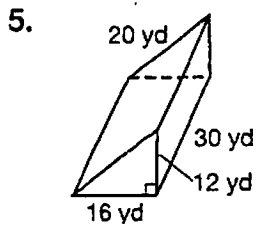
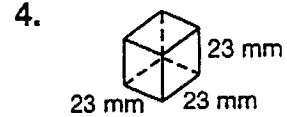
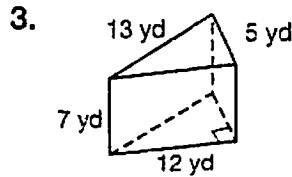
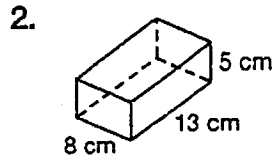
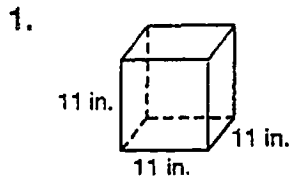
b. SA = area of rectangle + area of rectangle + area of rectangle + area of 2 triangles

$$\begin{aligned} &= (\underline{\quad} \times \underline{\quad}) + (\underline{\quad} \times \underline{\quad}) + (\underline{\quad} \times \underline{\quad}) + 2 \times (\underline{\quad} \times \underline{\quad} \div 2) \\ &= \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} \\ &= \underline{\quad} \text{ cm}^2 \end{aligned}$$



SKILL 15: Practice

Find the surface area of each prism.



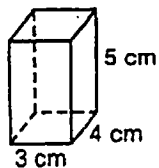
9. A music company wants to design a cardboard box for mailing a 2-CD set measuring 14.2 cm by 12.4 cm by 2.5 cm. What amount of surface area will the box have?

Find the surface area of the prism.

10. A cereal box measures 16 cm by 6 cm by 25 cm. What is the surface area of the box?

TEST PREP

11. What is the surface area of the prism?



Skill 15

- A 60 cm^2 C 70 cm^2
B 64 cm^2 D 94 cm^2

12. What is the area of a rectangle that has a length of 12 ft and a width of 10 ft?

Skill 8

- F 120 ft^2 H 44 ft^2
G 60 ft^2 J 22 ft^2