

Lesson 5-7 • Apply Day

Reinforce Understanding

Surface Area of Triangular Prisms

I can find the surface area of rectangular and triangular prisms.

Worked model

A triangular prism is 11 cm long. Each triangular end is a right triangle with legs of 6 cm and 8 cm and a longest side of 10 cm. Find the surface area.

1. The net has 2 congruent triangles and 3 rectangles.
2. Both triangular ends: $2 \times (\frac{1}{2} \times 6 \times 8) = 48$
3. Every rectangle uses the length 11. $6 \times 11 = 66$ $8 \times 11 = 88$ $10 \times 11 = 110$
4. Add every face. $48 + 66 + 88 + 110 = 312$

Answer: The surface area is 312 square centimeters (312 cm²).

Practice

Complete each exercise. Show the reasoning that supports your answer.

1. Find the surface area of a rectangular prism measuring 5 by 3 by 2.

Complete each step, then write the final answer.

1. Add one of each face pair: $15 + 10 + 6 = \underline{\hspace{2cm}}$.
2. Double the three-face sum: $\underline{\hspace{2cm}}$.
3. Label the answer in $\underline{\hspace{2cm}}$ units.

Answer: $\underline{\hspace{5cm}}$

2. A triangular prism is 6 units long. Its right-triangle base has side lengths 3, 4, and 5. Find the total surface area.

Complete each step, then write the final answer.

1. Find both triangular ends: $2(\frac{1}{2} \times 3 \times 4) = \underline{\hspace{2cm}}$.
2. Add the triangle side lengths: $3 + 4 + 5 = \underline{\hspace{2cm}}$.
3. Find the three rectangles together: $12 \times 6 = \underline{\hspace{2cm}}$.
4. Add the ends and rectangles: $\underline{\hspace{2cm}}$.

Answer: $\underline{\hspace{5cm}}$

3. Find the surface area of a rectangular prism measuring 7 by 7 by 3.

Complete each step, then write the final answer.

1. Add one of each face pair: $49 + 21 + 21 = \underline{\hspace{2cm}}$.
2. Double the three-face sum: $\underline{\hspace{2cm}}$.
3. Label the answer in $\underline{\hspace{2cm}}$ units.

Answer: $\underline{\hspace{5cm}}$