

Net Area Quest

Find every face area, then add.

GRADE 6 • 6.GSR.5.2

6.GSR.5.2 "Given the net of three-dimensional figures with rectangular and triangular faces, determine the surface area of these figures."

NAME _____

DATE _____

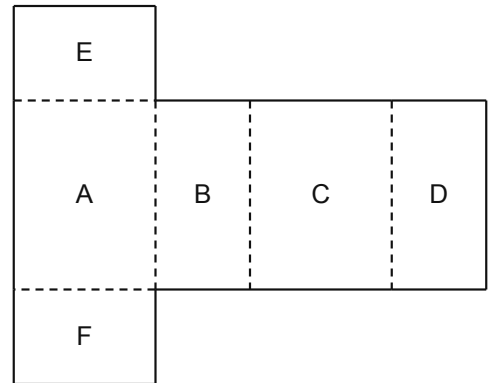
The big idea

A net unfolds all the faces of a solid. Use the lettered faces and dimension legend. Rectangle area = length x width; triangle area = half of base x perpendicular height. Add every face once and use square units.

Try it together

Find the surface area of this rectangular prism from its net. All dimensions in the legend are centimeters.

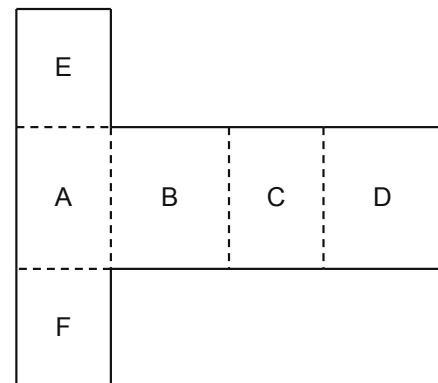
A and C: $3 \times 4 = 12$ each. B and D: $2 \times 4 = 8$ each. E and F: $3 \times 2 = 6$ each. Add: $12 + 8 + 12 + 8 + 6 + 6 = 52$. Surface area = 52 square centimeters.



A/C: 3×4 ; B/D: 2×4 ; E/F: 3×2 (cm). Dashed edges fold.

1. Practice

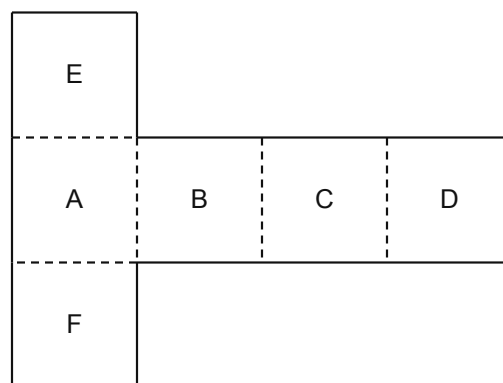
Find each pair of face areas, then the total surface area.



A/C: 4×6 ; B/D: 5×6 ; E/F: 4×5 (cm). Dashed edges fold.

2. Practice

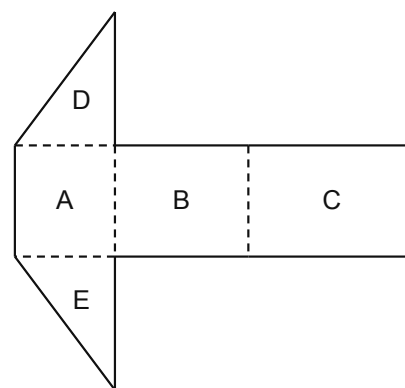
This net folds into a cube. Find one face area and the surface area.



A/B/C/D/E/F: 8×8 (cm). Dashed edges fold.

3. Practice

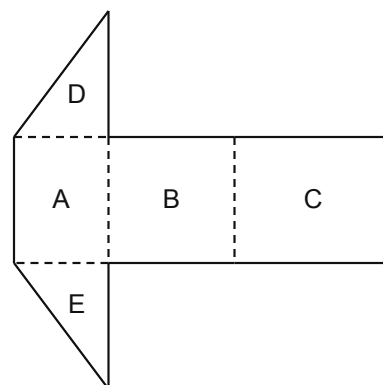
Find the areas of the three rectangles and two right triangles. Then find the surface area.



A: 9×10 ; B: 12×10 ; C: 15×10 ; D/E: right triangle: legs 9, 12; third side 15 (cm). Dashed edges fold.

4. Practice

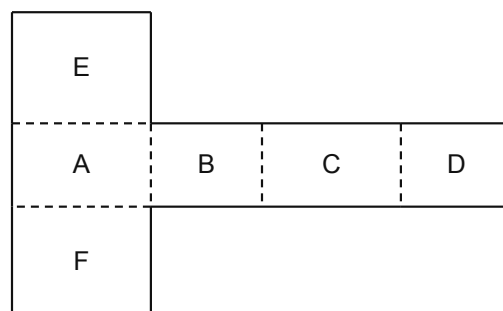
Find the surface area. Explain why a triangle uses half the product of its perpendicular legs.



A: 6×8 ; B: 8×8 ; C: 10×8 ; D/E: right triangle: legs 6, 8; third side 10 (cm). Dashed edges fold.

5. Apply

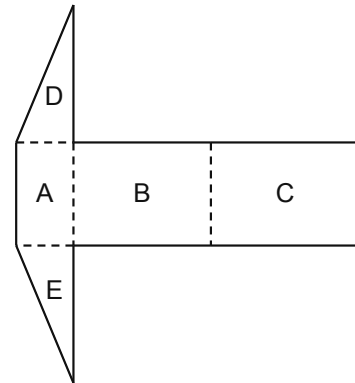
A carton has this net. How much cardboard covers all six faces? Ignore tabs and overlap.



A/C: 15×9 ; B/D: 12×9 ; E/F: 15×12 (cm). Dashed edges fold.

6. Apply

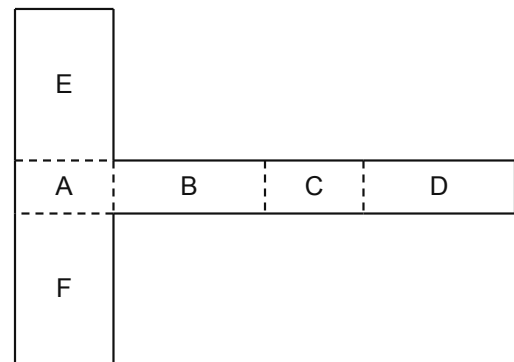
A closed triangular-prism package has this net. Find the covering area, including both triangular ends. Ignore tabs and overlap.



A: 10×18 ; B: 24×18 ; C: 26×18 ; D/E: right triangle: legs 10, 24; third side 26 (cm).
Dashed edges fold.

7. Challenge

A student says this net has surface area 491 square centimeters. Identify what may have been missed and find the correct total.



A/C: 13×7 ; B/D: 20×7 ; E/F: 13×20 (cm).
Dashed edges fold.

Task 1

A/C: 24 each; B/D: 30 each; E/F: 20 each. Total: 148 square centimeters.

Task 2

Each face: 64 square centimeters. Six faces: 384 square centimeters.

Task 3

A: 90; B: 120; C: 150; D/E: 54 each. Total: 468 square centimeters.

Task 4

A: 48; B: 64; C: 80; D/E: 24 each. Total: 240 square centimeters. Each right triangle is half a rectangle with those leg lengths.

Task 5

846 square centimeters.

A/C: 135 each; B/D: 108 each; E/F: 180 each. Total = $2(135 + 108 + 180) = 846$.

Task 6

1320 square centimeters.

Rectangles: $180 + 432 + 468 = 1080$. Two triangles: $2 \times (10 \times 24 / 2) = 240$. Total = 1320.

Task 7

982 square centimeters. The student likely counted only one face of each matching pair: $91 + 140 + 260 = 491$, half the required total.

Teacher notes

All net legends give centimeters; answers are square centimeters. Dashed edges are folds. Each triangular end is a right triangle with perpendicular legs stated in the legend. Each triangular prism has two triangular ends and three rectangular faces. Use supplied dimensions, not measurements of the printed drawing. Use the student nets and their lettered face legends alongside the solutions.