

Grade 6 · Surface Area and Nets · Worksheet Answer Key

Common Core 6.G.A.4 · mathovore.fr

Every solution lists each face, shows the area of every face, and adds them to find the surface area in square units. Use the answers to check your work, and compare your count of faces with the nets drawn in the solution figures for the triangular prism and the pyramid.

Grade 6 Common Core: 6.G.A.4

Problem 1: Cube net

Each face: $5 \times 5 = 25 \text{ in}^2$.

$$SA = 6 \times 25 = 150$$

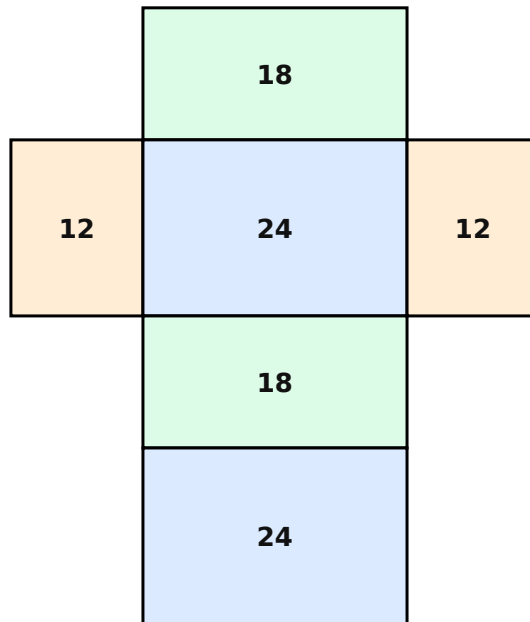
The surface area is 150 in^2 .

Problem 2: Rectangular prism

Faces come in pairs: $6 \times 4 = 24$, $6 \times 3 = 18$, and $4 \times 3 = 12$.

$$SA = 2(24 + 18 + 12) = 2(54) = 108$$

The surface area is 108 ft^2 .



Solution figure: the six face areas are 24, 18, 12, 24, 18, and 12.

Problem 3: Name the solid

Two triangles and three rectangles fold into a triangular prism.

$$2+3=5$$

It is a **triangular prism with 5 faces**.

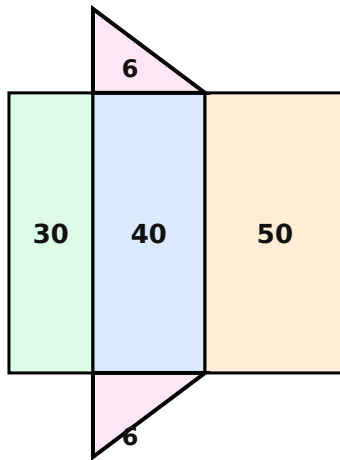
Problem 4: Triangular prism

Each triangle: $\frac{1}{2} \times 3 \times 4 = 6 \text{ in}^2$.

Rectangles: $3 \times 10 = 30$, $4 \times 10 = 40$, $5 \times 10 = 50$.

$$SA = 6 + 6 + 30 + 40 + 50 = 132$$

The surface area is 132 in^2 .



Solution figure.

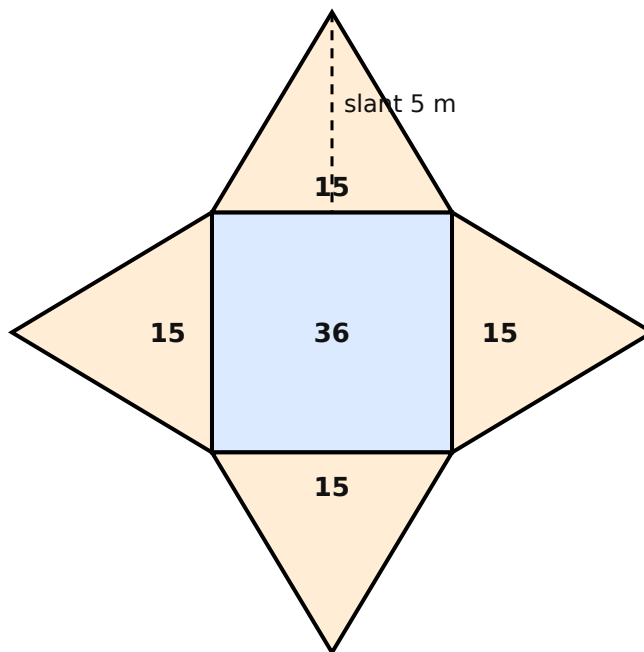
Problem 5: Square pyramid

Base: $6 \times 6 = 36 \text{ m}^2$.

One triangle: $\frac{1}{2} \times 6 \times 5 = 15 \text{ m}^2$. Four triangles: $4 \times 15 = 60 \text{ m}^2$.

$$SA = 36 + 60 = 96$$

The surface area is 96 m^2 .



Solution figure.

Problem 6: Open-top box

Base: $10 \times 8 = 80$. Two long sides: $2 \times (10 \times 4) = 80$. Two short sides: $2 \times (8 \times 4) = 64$.

$$80 + 80 + 64 = 224$$

The surface area is 224 in^2 .

Problem 7: Missing edge

$$6s^2 = 216, \text{ so } s^2 = 36.$$

$$6 \times 6 = 36, \text{ so } s = 6.$$

The edge is 6 in .

Problem 8: Gift wrap

$$12 \times 9 = 108, 12 \times 3 = 36, 9 \times 3 = 27.$$

$$SA = 2(108 + 36 + 27) = 2(171) = 342$$

She needs 342 in^2 of paper.

Problem 9: Toy chest paint

$$4 \times 2 = 8, 4 \times 2 = 8, 2 \times 2 = 4.$$

$$SA = 2(8 + 8 + 4) = 40 \text{ ft}^2.$$

Two coats: $2 \times 40 = 80 \text{ ft}^2$. Quarts: $80 \div 20 = 4$. Cost: $4 \times \$9 = \$36$.

The surface area is 40 ft^2 and the paint costs $\$36$.

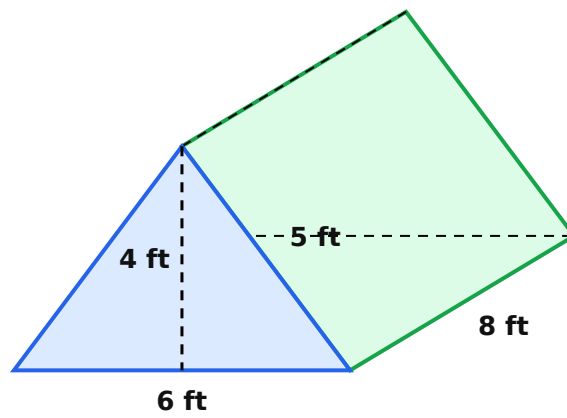
Problem 10: Camping tent

$$\text{Two ends: } 2 \times \left(\frac{1}{2} \times 6 \times 4\right) = 24 \text{ ft}^2.$$

$$\text{Two slanted sides: } 2 \times (5 \times 8) = 80 \text{ ft}^2. \text{ Floor: } 6 \times 8 = 48 \text{ ft}^2.$$

$$24 + 80 + 48 = 152. \text{ Cost: } 152 \times \$2.50 = \$380.$$

The tent needs 152 ft^2 of fabric costing $\$380$.



Solution figure: ends 24, slanted sides 80, floor 48 square feet.