

Grade 6 · Surface Area and Nets · Test Answer Key

Common Core 6.G.A.4 · mathovore.fr

This answer key gives a full worked solution and a scoring guide for each of the eight questions. The test is worth 20 points. Award partial credit as described, and check that each surface area has square units and includes every face of the solid, with no extra lid.

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

Question 1: Identify the solid (2 points)

- a. Six congruent squares fold into a **cube**.
- b. One square and four triangles fold into a **square pyramid**.

Scoring: 1 point for each correct name.

Question 2: Cube (2 points)

One face: $9 \times 9 = 81 \text{ in}^2$. $SA = 6 \times 81 = 486$.

The surface area is 486 in^2 .

Scoring: 1 point for the face area or a correct formula; 1 point for the correct surface area with square units.

Question 3: Rectangular prism (3 points)

Face areas: $7 \times 5 = 35$, $7 \times 4 = 28$, $5 \times 4 = 20$.

$$SA = 2(35 + 28 + 20) = 2(83) = 166$$

The surface area is 166 in^2 .

Scoring: 1 point for the three face areas; 1 point for doubling or adding all six faces; 1 point for the correct answer with square units.

Question 4: Triangular prism (3 points)

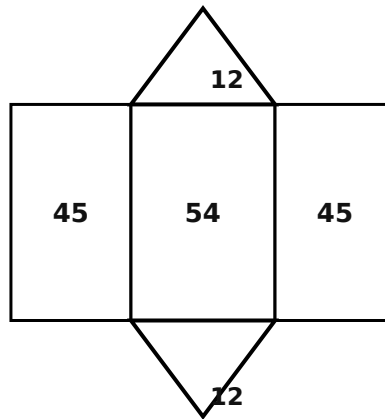
$$\text{Triangles: } 2 \times \left(\frac{1}{2} \times 6 \times 4 \right) = 24 \text{ ft}^2.$$

$$\text{Rectangles: } 5 \times 9 = 45, 6 \times 9 = 54, 5 \times 9 = 45, \text{ which total } 144 \text{ ft}^2.$$

$$SA = 24 + 144 = 168$$

The surface area is 168 ft².

Scoring: 1 point for the triangle areas; 1 point for the three rectangle areas; 1 point for the correct total with units.



Solution figure.

Question 5: Square pyramid (3 points)

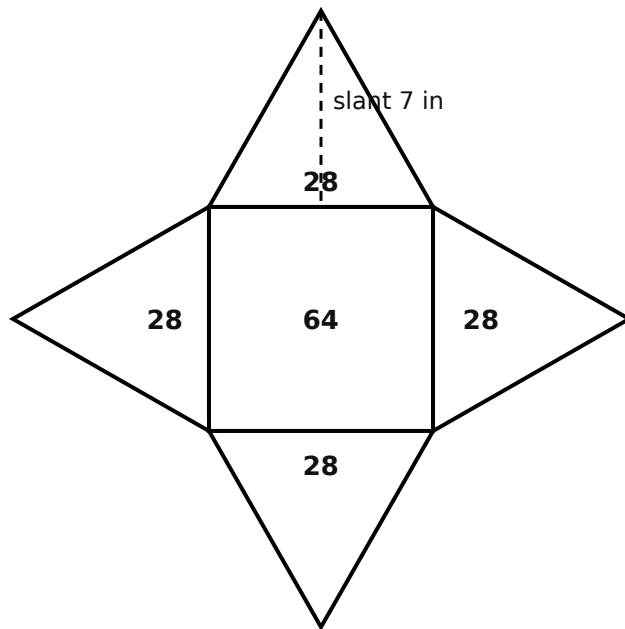
Base: $8 \times 8 = 64 \text{ in}^2$.

One triangle: $\frac{1}{2} \times 8 \times 7 = 28 \text{ in}^2$. Four triangles: 112 in^2 .

$$SA = 64 + 112 = 176$$

The surface area is 176 in².

Scoring: 1 point for the base; 1 point for the four triangles; 1 point for the correct total with units.



Solution figure.

Question 6: Painting a crate (3 points)

- $5 \times 3 = 15$, $5 \times 2 = 10$, $3 \times 2 = 6$. $SA = 2(15 + 10 + 6) = 2(31) = 62 \text{ ft}^2$.
- $62 \div 40 = 1.55$, so she needs **2 cans**.

Scoring: Part (a): 1 point for the face areas, 1 point for the total. Part (b): 1 point for rounding up to 2 cans.

Question 7: Aquarium glass (3 points)

- Bottom: $24 \times 12 = 288$. Two long sides: $2 \times (24 \times 16) = 768$. Two short sides: $2 \times (12 \times 16) = 384$.
Total: $288 + 768 + 384 = 1,440 \text{ in}^2$.
- $1,440 \times \$0.05 = \$72$.

Answers: $1,440 \text{ in}^2$ and $\$72$.

Scoring: Part (a): 1 point for omitting the top and including five faces; 1 point for the correct total. Part (b): 1 point.

Question 8: Cube edge (1 point)

$$6s^2 = 150, \text{ so } s^2 = 25 \text{ and } s = 5.$$

The edge is 5 in.

Scoring: 1 point for the correct edge length with units.

Total
20 points