

Grade 7 - Area, Volume and Surface Area - Answer Key

Common Core 7.G.B.6 · maths-pdf.fr/en/

Use this answer key to check your work on the volume and surface area worksheet. Every solution shows the steps, and the final answer appears in bold. If your answer is different, compare each step and look for the first place where the work changes.

Grade 7 · Common Core State Standards: **7.G.B.6**

Exercise 1 - Triangle area

$$A = \frac{1}{2} \times 12 \times 7 = 42$$

42 square inches

Exercise 2 - Parallelogram area

$$A = bh = 9 \times 5 = 45$$

45 square centimeters

Exercise 3 - Trapezoid area

$$A = \frac{1}{2}(8+12)(5) = \frac{1}{2}(20)(5) = 50$$

50 square feet

Step	Value
b1 + b2	20
half of 20	10
times h = 5	50

Trapezoid steps.

Exercise 4 - Right triangle

The legs are the base and height: $\frac{1}{2} \times 6 \times 8 = 24$

24 square inches

Exercise 5 - Prism volume

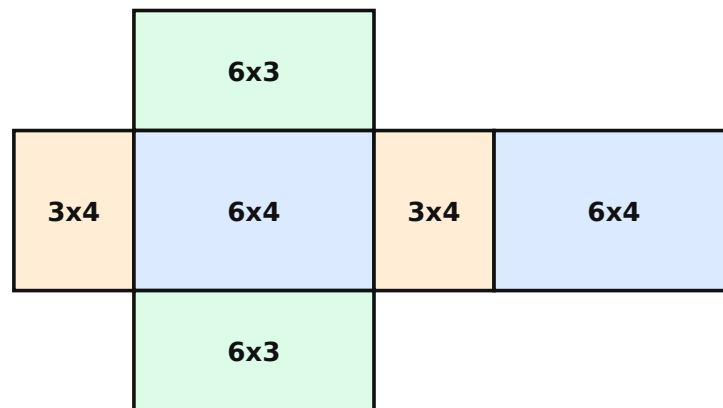
$$V = 5 \times 4 \times 3 = 60$$

60 cubic inches

Exercise 6 - Prism surface area

$$2(6 \cdot 4) + 2(6 \cdot 3) + 2(4 \cdot 3) = 48 + 36 + 24 = 108$$

108 square feet



The net of the box.

Exercise 7 - Cube

$$V = 5^3 = 125.$$

$$SA = 6 \times 5^2 = 150$$

125 cubic centimeters; 150 square centimeters

Exercise 8 - Triangular prism volume

Base area: $\frac{1}{2} \times 4 \times 3 = 6$.

$$V = 6 \times 10 = 60$$

60 cubic inches

Exercise 9 - Triangular prism surface

Two triangles: $2 \times 6 = 12$.

Three rectangles: $(3+4+5) \times 10 = 120$.

$$12 + 120 = 132$$

132 square inches

Exercise 10 - L-shaped area

$$10 \times 8 = 80, 4 \times 4 = 16.$$

$$80 - 16 = 64$$

64 square units

Exercise 11 - Fractional dimensions

$$2.5 \times 4 \times 1.5 = 10 \times 1.5 = 15$$

15 cubic feet

Exercise 12 - Missing dimension

Base area: $8 \times 4 = 32$.

$$96 \div 32 = 3$$

3 inches

Exercise 13 - Composite polygon

Rectangle: $9 \times 4 = 36$.

Triangle: $\frac{1}{2} \times 9 \times 3 = 13.5$.

$$36 + 13.5 = 49.5$$

49.5 square units

Exercise 14 - Fish tank

Water height: $\frac{3}{4} \times 12 = 9$ in.

$$20 \times 10 \times 9 = 1800$$

1,800 cubic inches

Exercise 15 - Wrapping a gift

Pairs of faces: $2(12 \cdot 8) = 192$, $2(12 \cdot 5) = 120$, $2(8 \cdot 5) = 80$.

$$192 + 120 + 80 = 392$$

392 square inches

Exercise 16 - Roof shingles

Area of one face: $\frac{1}{2} \times 24 \times 9 = 108$.

Both faces: 216 square feet.

$216 \div 33 \approx 6.5$, so round up.

7 bundles

Face	Area
Top and bottom	192
Front and back	120
Two sides	80
Total	392

Surface area of the box.

Exercise 17 - Garden bed

$$A = \frac{1}{2}(10+14)(6) = 72 \text{ square feet.}$$

$$V = 72 \times 0.5 = 36$$

72 square feet; 36 cubic feet

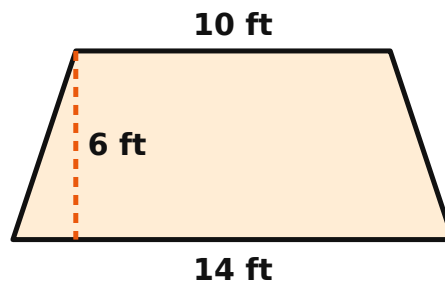
Exercise 18 - Painting a room

$$\text{Walls: } 2(12+10) \times 8 = 352.$$

$$\text{Subtract: } 352 - 21 - 15 = 316 \text{ square feet.}$$

$$316 \div 400 < 1, \text{ so 1 gallon.}$$

316 square feet; 1 gallon



The garden bed.

Exercise 19 - Swimming pool

$$30 \times 15 \times 5 = 2250 \text{ cubic feet.}$$

$$2250 \times 7.5 = 16875$$

2,250 cubic feet; 16,875 gallons

Exercise 20 - Tent fabric

$$\text{Triangle area: } \frac{1}{2} \times 6 \times 4 = 12.$$

$$\text{Volume: } 12 \times 8 = 96 \text{ cubic feet.}$$

Ends: $2 \times 12 = 24$. Slanted sides: $2 \times (5 \times 8) = 80$.

$$24 + 80 = 104$$

96 cubic feet; 104 square feet