

Grade 7 · Area, Surface Area and Volume of Prisms · Worksheet

Common Core 7.G.B.6 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

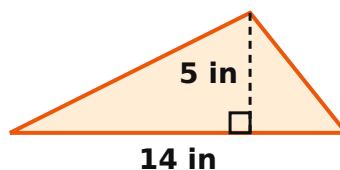
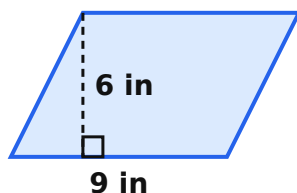
This worksheet has 20 problems on area, volume, and surface area, aligned with Common Core standard 7.G.B.6. The first problems ask for the area of parallelograms, triangles, trapezoids, and composite figures, followed by volume and surface area of cubes, rectangular prisms, and triangular prisms.

The last problems are word problems with composite solids, a toy chest, a pool, and a tent. Draw the pieces, label every dimension, and give each answer with square or cubic units.

Grade 7 Common Core: 7.G.B.6

Problem 1: Parallelogram and triangle

Find the area of each shape. The dashed segments show the heights.



A parallelogram and a triangle.

- The parallelogram
- The triangle

Problem 2: Volume of a rectangular prism

Find the volume of the box.

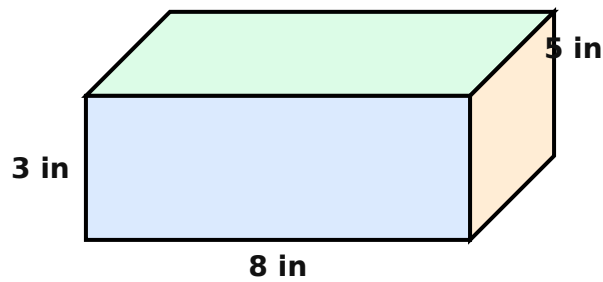


Figure for Problem 2.

Problem 3: Cube surface and volume

A cube-shaped storage bin has edges of 7 ft. Find its surface area and its volume.

Problem 4: Area of a trapezoid

Find the area of the trapezoid.

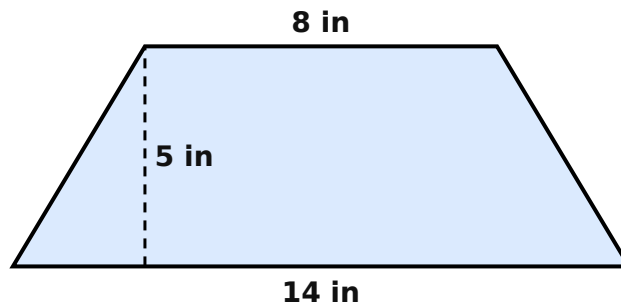


Figure for Problem 4.

Problem 5: Trapezoid ramp

The side view of a wheelchair ramp platform is a trapezoid. Its parallel sides are 9 ft and 15 ft, and the distance between them is 6 ft. Find its area.

Problem 6: Area of an L-shape

Find the area of the L-shaped patio.

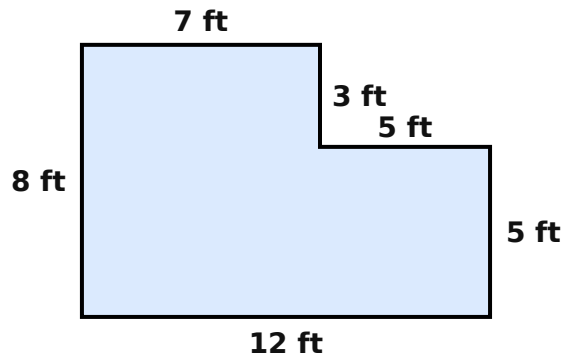
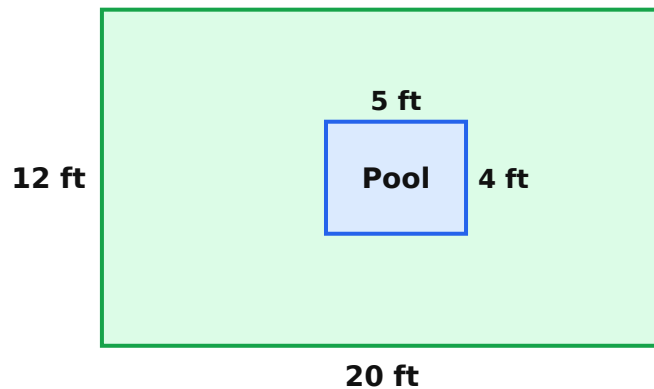


Figure for Problem 6.

Problem 7: Lawn with a pool

A backyard lawn is a 20 ft by 12 ft rectangle. A 5 ft by 4 ft rectangular pool sits inside it. Find the area of the grass.



A lawn with a pool in the middle.

Problem 8: Rectangle and triangle

A banner is a rectangle with a triangle on top. Find its area.

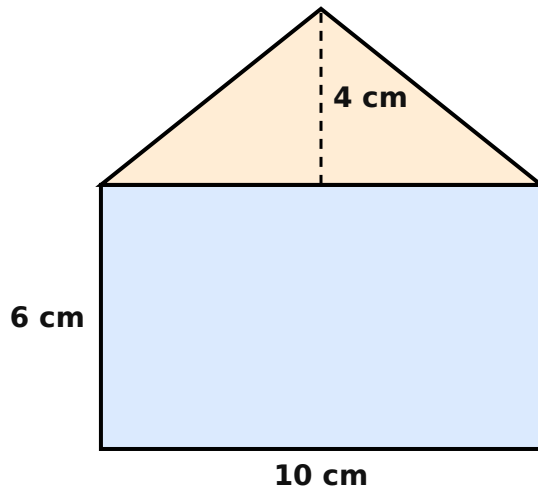


Figure for Problem 8.

Problem 9: Volume of a triangular prism

Find the volume of the triangular prism.

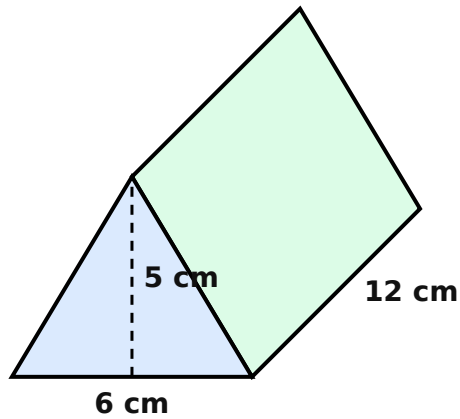
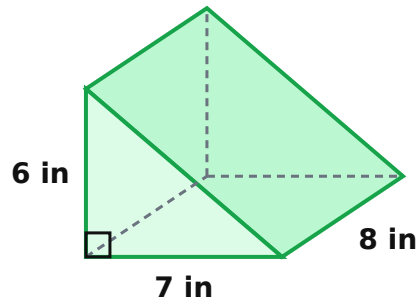


Figure for Problem 9.

Problem 10: Right triangle prism

The base of the prism is a right triangle with legs 7 in and 6 in. The prism is 8 in long. Find its volume.



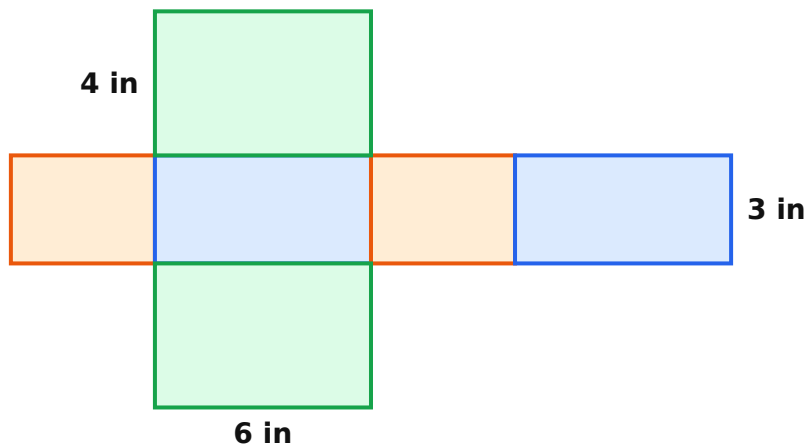
A triangular prism.

Problem 11: Surface area of a box

A shoe box is 12 in long, 7 in wide, and 5 in tall. Find the surface area of the closed box.

Problem 12: Surface area from a net

The net folds into a closed box that is 6 in long, 4 in wide, and 3 in tall. Find the surface area of the box.



A net of a closed box.

Problem 13: Surface area of a triangular prism

Find the surface area of the prism. The bases are right triangles.

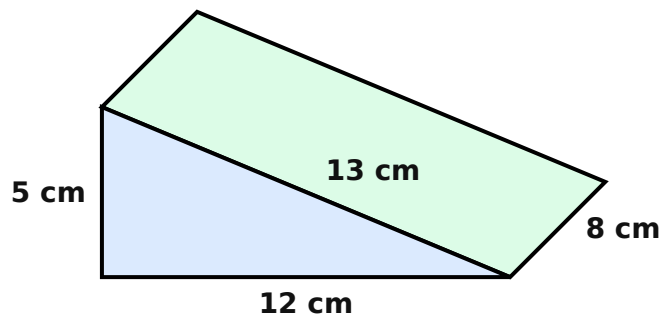


Figure for Problem 13.

Problem 14: Missing prism length

The base of a triangular prism is a triangle with base 10 cm and height 6 cm. The volume of the prism is 270 cm^3 . Find the length of the prism.

Problem 15: Missing dimension

A rectangular fish tank is 24 in long and 10 in wide. It holds $3,600 \text{ in}^3$ of water when full. How tall is the tank?

Problem 16: Painting a toy chest

Ethan paints the outside of a toy chest, including the lid but not the bottom. The chest is a rectangular prism 4 ft long, 2 ft wide, and 2 ft tall. One can of paint covers 16 ft^2 and costs \$9. Find the area to paint and the cost of the paint.

Problem 17: Volume of a composite solid

A concrete step block has an L-shaped front face. Find its volume.

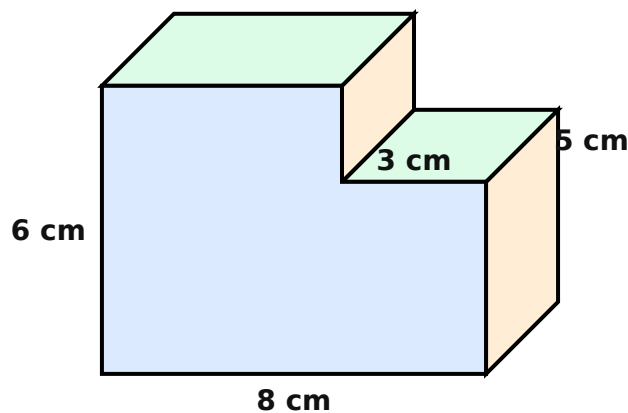
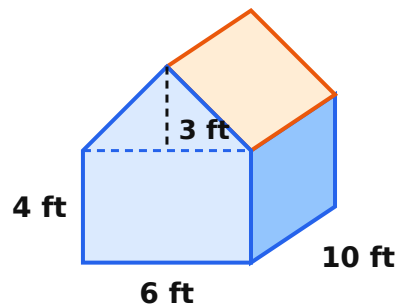


Figure for Problem 17.

Problem 18: House-shaped solid

A model house is a rectangular prism topped by a triangular prism roof. The rectangular part is 6 ft wide, 4 ft tall, and 10 ft long. The roof has triangular ends with base 6 ft and height 3 ft, and it is also 10 ft long. Find the total volume.



The model house: a block with a roof.

Problem 19: Tiling a pool

A community pool is a rectangular prism 20 ft long, 10 ft wide, and 5 ft deep. Maya's town tiles the floor and the four inside walls. Tile costs \$3 per square foot. (a) Find the volume of the pool. (b) Find the area to be tiled. (c) Find the cost of the tile.

Problem 20: Tent problem

Aisha is making a tent shaped like a triangular prism. The triangular ends have base 6 ft and height 4 ft. The slanted sides are 5 ft long, and the tent is 8 ft long.

- Find the volume of the tent.
- Find the amount of fabric needed for the two triangular ends and the two slanted sides (no floor).

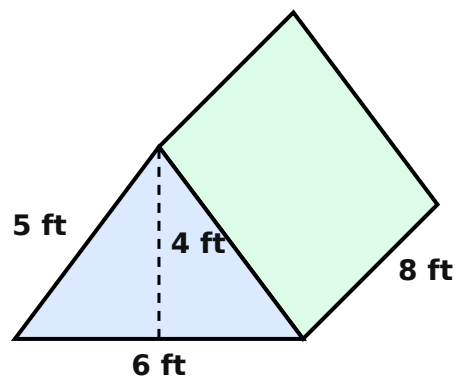


Figure for Problem 20.