

Packet 16: Plane and Solid Figures

Dear Parents/Guardians,

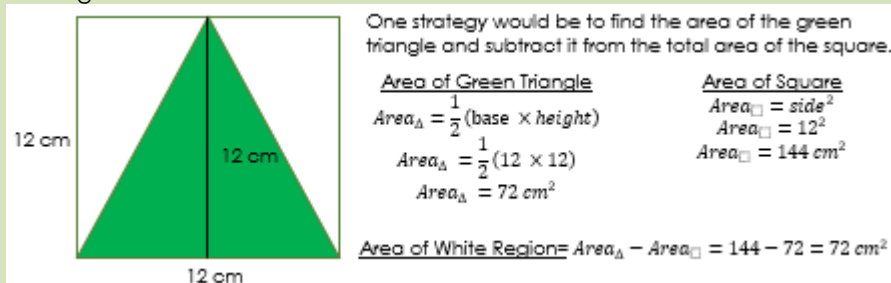
Packet 16 revisits and extends previously taught geometric concepts. In Lesson 1, students find the areas of regular and irregular figures. Lessons 2 and 3 explore two- and three-dimensional figures that are sometimes composed of multiple figures. Students make net figures to find surface areas and volumes of figures. They create two-dimensional cross-sections and describe the shapes of cross-sections.

Area

Students apply area formulas to find areas of plane figures.

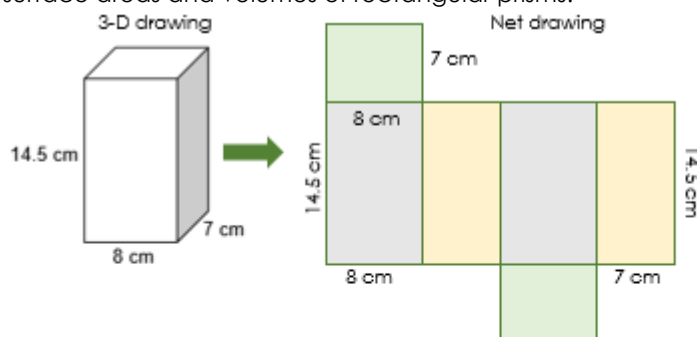
(See Resource Guide, Part 2, page 54 for a summary of area formulas.)

Example: If the length of the side of the square is 12 cm, what is the area of the white region?



Surface Area and Volume

Students create net drawings of three-dimensional figures. They calculate the surface areas and volumes of rectangular prisms.



Notice that there are three sets of congruent rectangles.

To find the total surface area, find the total of the areas of the rectangles that create the prism.

$$SA = 2(lw + wh + lh).$$

$$SA = 2(8 \times 14.5 + 14.5 \times 7 + 8 \times 7)$$

$$SA = 2(116 + 101.5 + 56)$$

$$SA = 547 \text{ cm}^2$$

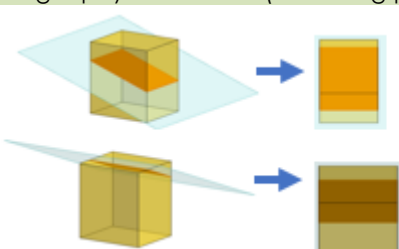
To find the volume, $V = l \times w \times h$

$$V = 8 \times 14.5 \times 7$$

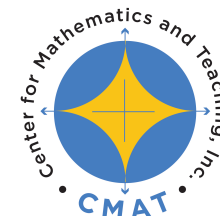
$$V = 812 \text{ cm}^3$$

Cross-Sections

Students explore different 2-D cross-sections of 3-D figures. This may be done using a physical model (like slicing play-doh) or with technology (like Geogebra).



Notice that the shape of the cross-section changes as we change where we slice the figure.



Mathlinks7

By the end of the packet, your student should know...

How to find areas of two-dimensional figures Lesson 16.1

How to find surface areas and volumes of three-dimensional figures Lesson 16.2

How to identify and describe cross sections of three dimensional figures Lesson 16.3

Additional Resources

Resource Guide (RG)
Part 2, pages 52-60