

Math 6 – Unit 5: Area & Volume Review

Knowledge & Understanding

- 1) How could you determine the area of a composite figure, such as the ones shown here?

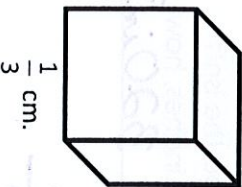


Break it up into 2 or more shapes, then find the area of each shape.

- 2) What types of units are used to describe area? square units
 3) What types of units are used to describe volume? cubic units

Proficiency of Skills

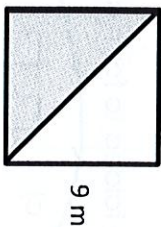
- 4) Determine the volume of the cube: $\frac{1}{27} \text{ cm}^3$



$\frac{1}{3} \text{ cm}$

$V = l \cdot w \cdot h$
 $V = \frac{1}{3} \text{ cm} \cdot \frac{1}{3} \text{ cm} \cdot \frac{1}{3} \text{ cm}$
 $V = \frac{1}{27} \text{ cm}^3$

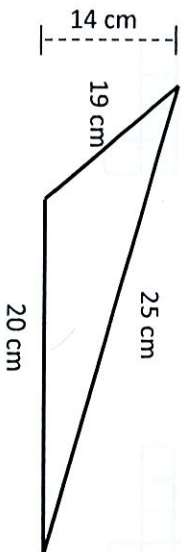
- 5) Find the area of the shaded section of the square: 40.5 cm^2



9 m

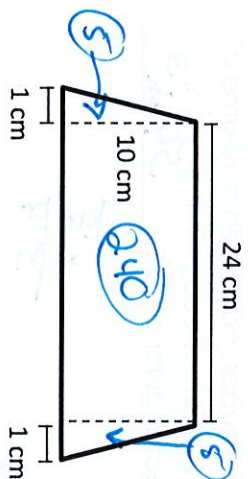
$A = \frac{1}{2} \cdot b \cdot h$
 $A = \frac{1}{2} \cdot 9 \cdot 9$
 $A = \frac{1}{2} \cdot 81$
 $A = 40.5 \text{ cm}^2$

- 6) Find the area of the triangle: $A = 140 \text{ cm}^2$



$A = \frac{1}{2} \cdot b \cdot h$
 $A = \frac{1}{2} \cdot 20 \cdot 14$
 $A = 10 \cdot 14$
 $A = 140 \text{ cm}^2$

- 7) Determine the area of the trapezoid: 250



$A = \frac{1}{2} \cdot (b_1 + b_2) \cdot h$
 $A = \frac{1}{2} \cdot (10 + 24) \cdot 1$
 $A = \frac{1}{2} \cdot 34 \cdot 1$
 $A = 17 \cdot 1$
 $A = 17$

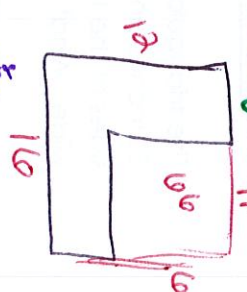
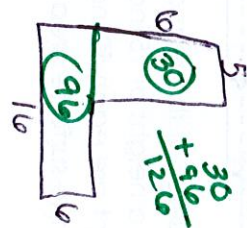
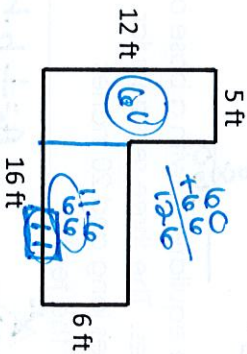
- 8) The surface area of a cube can be found by using the formula $SA = 6s^2$. Determine the surface area of a cube with a length of 8 cm.

$SA = 384 \text{ cm}^2$



$64 \cdot 6 = 384$

- 9) Find the area of the figure shown below: 120 ft²



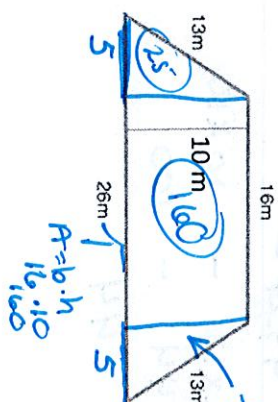
120 ft^2

Application

- 10) If carpet costs \$4 per square yard, how much would it cost to carpet a rectangular room that is 6 yards wide and 10 yards long? \$240

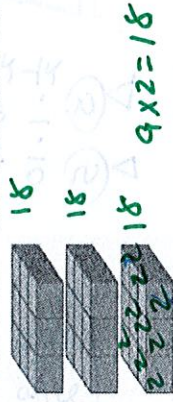


- 11) What is the area of the trapezoid? 210 m²



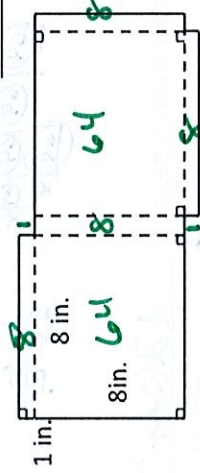
$A = \frac{1}{2} \cdot (b_1 + b_2) \cdot h$
 $A = \frac{1}{2} \cdot (10 + 26) \cdot 5$
 $A = \frac{1}{2} \cdot 36 \cdot 5$
 $A = 18 \cdot 5$
 $A = 90$

- 12) A rectangular prism is filled with small cubes of the same size. The bottom layer consists of 9 cubes, each with a volume of 2 cubic inches. If there are 3 layers of cubes in the prism, what is the volume of the rectangular prism? 54 in³



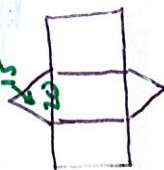
$$\begin{array}{r} 18 \\ \times 3 \\ \hline 54 \end{array}$$

- 13) A box is made of cardboard with no overlap. The net of the box is shown below. How many square inches of cardboard is needed to make the box? 160 in²



$$\begin{array}{r} 64 \\ 64 \\ \hline 128 \\ 32 \\ \hline 160 \end{array}$$

- 14) The triangular sides of the tent are equilateral, with a base of 20 inches and a height of 15 inches. The three rectangular sides of the tent are each 50 inches long and 20 inches wide. What is the surface area of the tent? 1600



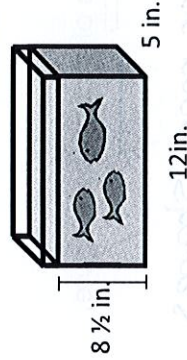
$$A = \frac{1}{2} b \cdot h$$

- 15) Mariah and Max are making a plaque to dedicate to the swaggerific saxophone players of the ECMS sixth-grade band. The center is a 10-inch square, and the edges of the frame measure 12 inches long and 12 inches wide. What is the area of the frame? 44 ft²



$$\begin{array}{r} 12 \times 12 = 144 \\ 10 \times 10 = 100 \\ \hline 44 \end{array}$$

- 16) A fish tank is shown below. What is the volume of the water in the tank? V = 510 in³



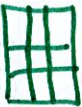
$$V = l \cdot w \cdot h$$

$$12 \cdot 5 \cdot 8.5$$

$$60 \cdot 8.5$$

$$V = 510$$

- 17) How many cubic feet are in a cubic yard? 9 cubic feet



$$1 \text{ yard} = 3 \text{ ft}$$

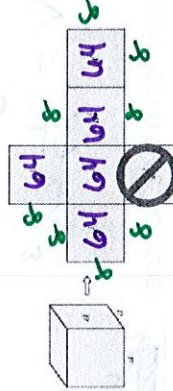
- 18) The volume of a rectangular prism can be found by using the formula $V = Bh$. If the base of a prism is square with a side length of 3 inches and the height of the prism is $2 \frac{1}{4}$ inches, find the volume of the prism. 20.25 in³ or 20 1/4 in³



$$V = l \cdot w \cdot h$$

$$3 \cdot 3 \cdot 2 \frac{1}{4} = \frac{81}{4} = 20 \frac{1}{4}$$

- 19) Andres is painting five faces of a storage cube (he isn't painting the bottom face). If each face is 8 inches, how many square inches will he need to paint? 320 in²



$$\begin{array}{r} 64 \\ \times 5 \\ \hline 320 \end{array}$$

- 20) Which of the following nets could NOT be folded to form a cube?

