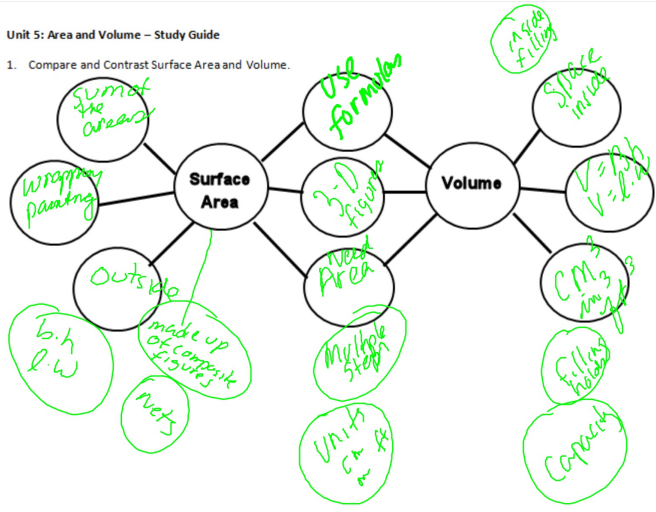
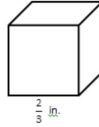


Unit 5: Area and Volume – Study Guide

1. Compare and Contrast Surface Area and Volume.

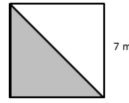


2. Determine the volume of the cube pictured below.



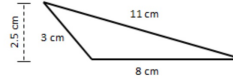
$$\frac{8}{27} \text{ in}^3$$

3. Find the area of the shaded section of the square below.



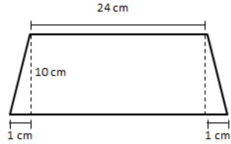
$$24.5 \text{ m}^2$$

4. Find the area of the triangle pictured below.



$$10 \text{ cm}^2$$

5. Determine the area of the trapezoid. Decompose the figure into rectangles and triangles.

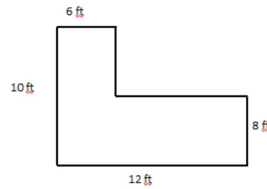


$$250 \text{ cm}^2$$

6. Determine the surface area of a rectangular prism with a length of 6 cm, a width of 5 cm, and a height of 3 cm.

$$126 \text{ cm}^2$$

7. Find the area of the figure shown below.



$$108 \text{ ft}^2$$

8. If carpet costs \$4.75 per square yard, how much would it cost to carpet a rectangular room that is 5 yards wide and 12 yards long?

$$\underline{\$285.00}$$

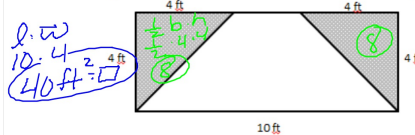
Your warm up today...

On Desk:
Agenda
Study Guide

Start checking your answers and analyzing your work.

- | | |
|-------------------------|--------------------------|
| 9) 24 ft ² | 13) 375 in ² |
| 10) 7 ft | 14) 1728 in ³ |
| 11) 402 in ² | 15) 148 in ³ |
| 12) 144 ft ² | 16) 61.5 ft ² |

9. Daniel is making a plaque for his den. He started with the rectangular piece of wood and then cut off the two shaded isosceles triangles as illustrated below. What is the area of the remaining piece of wood?

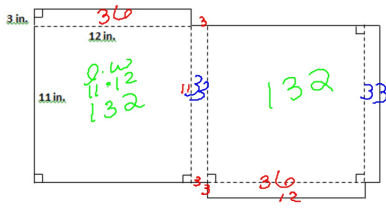


$$\begin{array}{r} 24 \text{ ft}^2 \\ \underline{340} \\ -16 \\ \hline 24 \end{array}$$

10. The volume of a rectangular prism is 105m³. Find the height if the area of the base is 15m².

$$\begin{aligned} V &= Bh \\ 105 &= 15 \times h \\ 7 &= h \end{aligned}$$

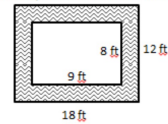
11. A box is covered with decorative wrapping paper with no overlap. The net of the box is shown below.



$$\begin{array}{r} 264 \\ 66 \\ \times 72 \\ \hline 402 \end{array}$$

How many square inches of wrapping paper is needed to cover the surface area of the box? 402 in²

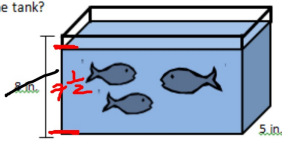
12. Paxton wants to carpet his room with a 5 foot wide strip of carpet that goes around the outside of his room. If he leaves the inside as bare wood, what is the area of the carpet that he will need?



144 ft²

$$\begin{array}{r} \text{large rectangle} \quad 216 \\ - \text{small rectangle} \quad - 72 \\ \hline 144 \text{ ft}^2 \end{array}$$

13. A fish tank is shown below. If the water level is $\frac{1}{2}$ inch below the top of the tank, what is the volume of the water in the tank?



375 in³

$$\begin{array}{r} 2 \\ 25 \\ \times 15 \\ \hline 375 \end{array}$$

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

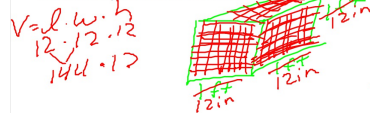
$$10 \cdot 5 \cdot 7 \frac{1}{2}$$

$$50 \cdot 7 \frac{1}{2}$$

$$50 \cdot \frac{15}{2}$$

$$V = 375 \text{ in}^3$$

14. How many cubic inches are in a cubic foot?



1,728 in³

15. 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 4 inches and the height of the prism is $9\frac{1}{4}$ inches, find the volume of the prism.



148 in³

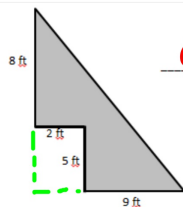
$$V = Bh$$

$$16 \cdot 9\frac{1}{4}$$

$$4 \cdot 16 \cdot \frac{37}{4} = 148 \text{ in}^3$$

16. Determine the area of the pentagon pictured to the right.

Triangle
- Rectangle



61.5 ft²

$$\begin{array}{r} 71.5 \\ - 10.0 \\ \hline 61.5 \end{array}$$

<u>Triangle</u>	<u>Rectangle</u>
$A = \frac{1}{2}bh$	$A = b \times h$
$= \frac{1}{2} \times 13 \times 11$	$= 2 \times 5$
$= \frac{1}{2} \times 143$	$= 10$
$= 71.5$	