

Math 6 - Unit 5: Area & Volume
End of Unit ~~Test~~ **STUDY GUIDE**

Name: KEY

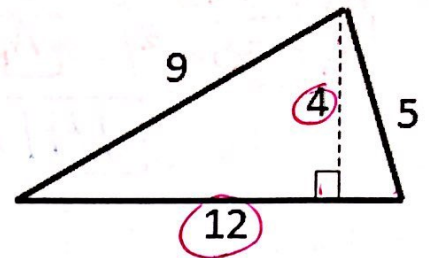
Class Period: 1 2 3 4 Date: _____

- 1) What is the area of the triangle?

$$A = \frac{1}{2}bh \text{ or } \frac{bh}{2}$$

$$A = \frac{1}{2}(12)(4)$$

$$A = 24 \text{ units}^2$$



- 2) Carli is getting new carpet for her rectangular bedroom. Her room is 12 feet long and 11 feet wide. If the carpet is \$3.50 per square foot, how much will it cost to carpet her room?

$$A = bh$$

$$A = 12 \cdot 11$$

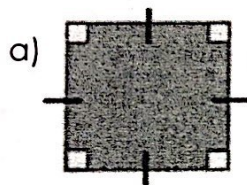
$$A = 132 \text{ ft}^2$$

$$\begin{array}{r} 12 \\ 11 \\ \hline 132 \end{array}$$

$$\begin{array}{r} 132 \\ \times 3.50 \\ \hline 6600 \\ 39600 \\ \hline 46200 \end{array}$$

$$\$462$$

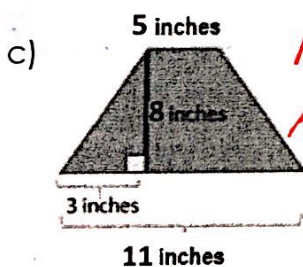
- 3) Which quadrilateral does **NOT** have an area of 64 square inches?



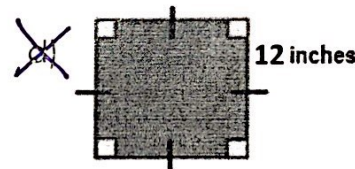
$$\begin{aligned} A &= bh \\ A &= 8 \cdot 8 \\ A &= 64 \text{ in}^2 \end{aligned}$$



$$\begin{aligned} A &= bh \\ A &= 3.2 \times 20 \\ A &= 64 \text{ in}^2 \end{aligned}$$



$$\begin{aligned} A &= h \left(\frac{b_1 + b_2}{2} \right) \\ A &= 8 \left(\frac{5 + 11}{2} \right) \\ A &= 8 \cdot 8 \\ A &= 64 \text{ in}^2 \end{aligned}$$



$$\begin{aligned} A &= bh \\ A &= 12 \cdot 12 \\ A &= 144 \text{ in}^2 \end{aligned}$$

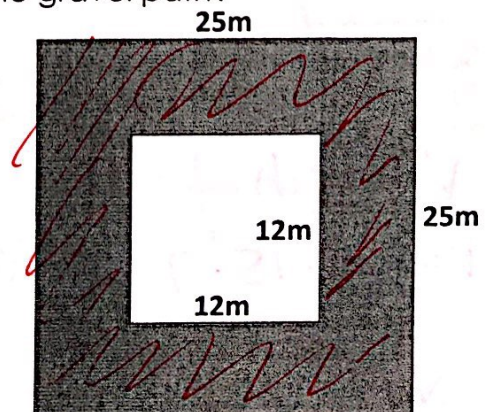
- 4) A ~~12~~ ¹² m by ~~12~~ ¹² m square garden is surrounded by a gravel path. The gravel path is shaded in the diagram below. What is the area of the gravel path?

$$\begin{aligned} A &= bh \\ A &= 25 \cdot 25 \\ A &= 625 \end{aligned}$$

$$\begin{aligned} A &= bh \\ A &= 12 \cdot 12 \\ A &= 144 \end{aligned}$$

$$\begin{array}{r} 625 \\ - 144 \\ \hline 481 \end{array}$$

$$481 \text{ m}^2$$



Football field

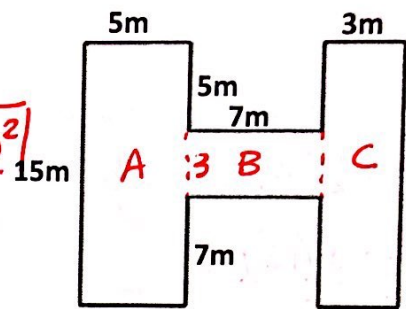
- 5) The letter H is going to be painted in the center of the Henderson High School every game. The diagram shows the dimensions of the letter. What is the area of the letter "H"?

$$A_A = bh \quad A_B = bh \quad A_C = bh$$

$$A_A = 5 \cdot 15 \quad A_B = 7 \cdot 3 \quad A_C = 3 \cdot 15$$

$$A_A = 75m^2 \quad A_B = 21m^2 \quad A_C = 45m^2$$

$$141m^2$$



- 6) A wall is built using standard size bricks. The illustration shows the dimensions of a construction brick. What is the volume of the brick?

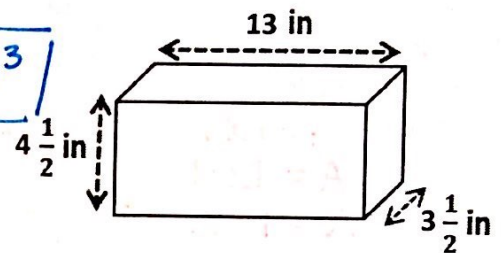
$$V = l \cdot w \cdot h$$

$$V = 13 \cdot 3\frac{1}{2} \cdot 4\frac{1}{2}$$

$$V = \frac{13}{1} \cdot \frac{7}{2} \cdot \frac{9}{2} = \frac{819}{4} in^3$$

$$204\frac{3}{4} in^3$$

OR

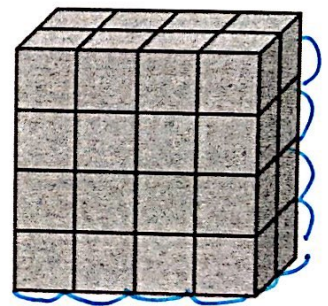


- 7) What is the **volume** of the prism?

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

$$V = 4 \cdot 2 \cdot 4$$

$$V = 32 units^3$$



- 8) The Audi A7 has $24\frac{1}{2}$ cubic feet of cargo space. Could the following be the dimensions for the cargo space?

$$2\frac{1}{2} ft \cdot 3\frac{1}{2} ft \cdot 5 ft$$

$$\frac{5}{2} \cdot \frac{7}{2} \cdot \frac{5}{1} = \frac{175}{4}$$

$$43\frac{3}{4} ft^3$$

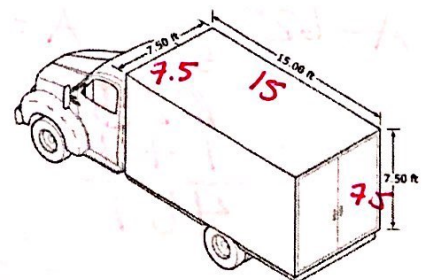
NO, because it is too much space.

- 9) Sarina has determined she needs a truck with 800 cubic feet of space to move her furniture. Does the truck illustrated have the space she needs?

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

$$V = 7.5 \cdot 15 \cdot 7.5 = 843.75 ft^3$$

yes it does.



- 10) The dimensions for two boxes are shown in the table. Which box has the greater volume and by how much?

Dimensions	Box A	Box B
Length:	15 cm	8.7 cm
Width:	5.3 cm	3.5 cm
Height:	4 cm	12 cm

Box B
is bigger
by 47.4cm^3

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

$$V = (15)(5.3)(4)$$

$$V = 318\text{cm}^3$$

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

$$V = (8.7)(3.5)(12)$$

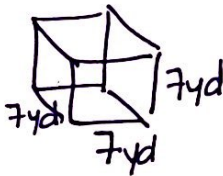
$$V = 365.40\text{cm}^3$$

- 11) Write a situation that would require you to find the surface area. Write a situation that would require you to find the volume.

SA
wrapping paper
paint
carpet
material

V
water to fill a pool
Jolly Ranchers in the container
Paint in a can

- 12) What is the surface area of a cube with a side length of 7 yards?



$$A = bh = 7 \cdot 7 = 49$$

$$\begin{array}{r} 5 \\ 49 \\ \underline{6} \\ 294 \end{array}$$

$$294\text{yd}^2$$

- 13) Find the surface area of the square pyramid.

$$A = bh$$

$$A = 7 \cdot 7$$

$$A = 49$$

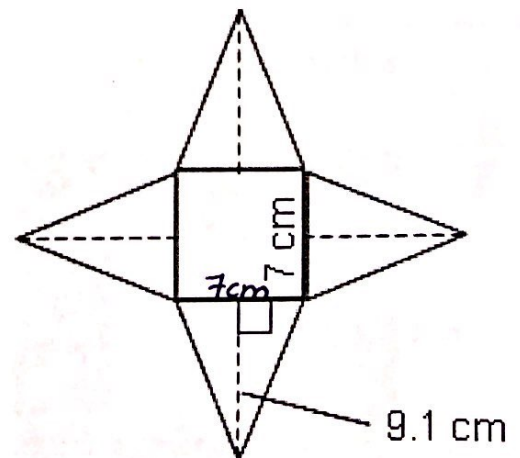
$$A = \frac{1}{2}(b)(h)$$

$$A = \frac{1}{2}(7)(9.1)$$

$$A = 31.85$$

$$\begin{array}{r} 32 \\ 31.85 \\ \times 4 \\ \hline 127.40 \end{array}$$

$$\begin{array}{r} 127.40 \\ 49.00 \\ \hline 176.40\text{cm}^2 \end{array}$$

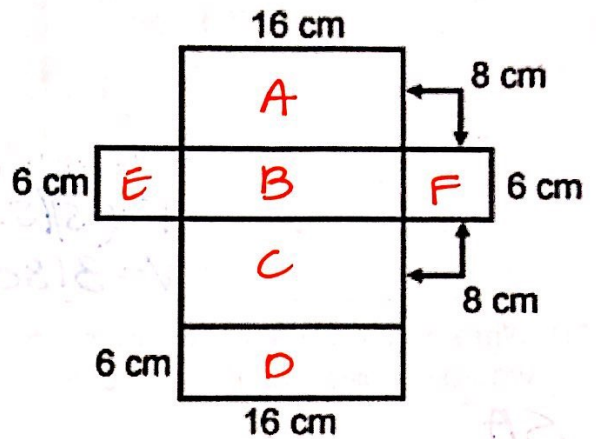


14) A cereal box is in the shape of a rectangular prism. The height of the box is 16 cm, the width is 6 cm and the length is 8 cm. What is the surface area of the cereal box?

A/C $A = bh = 16 \cdot 8 = 128$
 $= 128$

E/F $A = bh = 6 \cdot 8 = 48$
 $= 48$

B/D $A = bh = 6 \cdot 16 = 96$
 $= 96$



544 cm^2