

TEST REVIEW:

Surface Area & Volume

1. Alina drew a model of a square pyramid. The dimensions of the model are shown in the diagram. What is the volume of Alina's model in cubic feet?

$$V = \frac{1}{3} Bh$$

$$V = \frac{1}{3} (196)(18)$$

$$V = \frac{1}{3} (3528)$$

$$V = 1176 \text{ ft}^3$$

$$B = bh$$

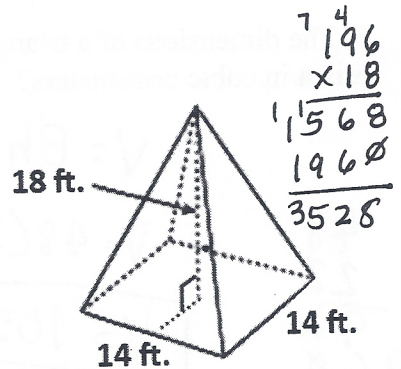
$$14(14)$$

$$B = 196$$

$$h = 18$$

$$\begin{array}{r} 14 \\ \times 14 \\ \hline 56 \\ 140 \\ \hline 196 \end{array}$$

$$\begin{array}{r} 1176 \\ 3 \overline{) 3528} \\ \underline{3} \\ 5 \\ \underline{-3} \\ 22 \\ \underline{-21} \\ 18 \\ \underline{-18} \\ 0 \end{array}$$



2. The two faces of a prism which are the bases are both parallel and congruent to each other.

3. Mr. Thompson is building a sand box like the one shown below. What is the volume of the sand box in cubic feet?

$$V = Bh$$

$$V = (104)(5)$$

$$V = 520 \text{ ft}^3$$

$$B = bh$$

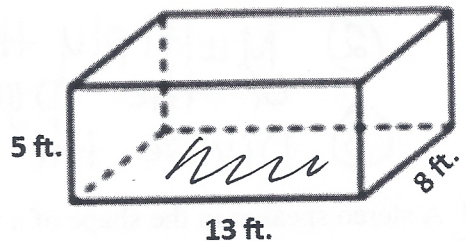
$$B = 13(8)$$

$$B = 104$$

$$h = 5$$

$$\begin{array}{r} 104 \\ \times 5 \\ \hline 520 \end{array}$$

$$\begin{array}{r} 13 \\ \times 8 \\ \hline 104 \end{array}$$



4. A storage container is shaped like a rectangular prism. The container's volume is 480 cubic feet. The length of the container is 12 feet, and the width of the container is 5 feet. What is the height of this container?

$$V = 480$$

$$V = Bh$$

$$\frac{480}{60} = \frac{60h}{60}$$

$$8 \text{ ft} = h$$

$$\begin{array}{r} 008 \\ 60 \overline{) 480} \\ \underline{480} \\ 0 \end{array}$$

$$B = bh$$

$$B = 12(5) = 60$$

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5. The dimensions of a triangular prism are shown in the diagram. What is the volume of the triangular prism in cubic centimeters?

$$\begin{array}{r} 48 \\ 22 \\ \hline 96 \\ 96 \\ \hline 1056 \end{array}$$

$$V = Bh$$

$$V = 48(22)$$

$$V = 1056 \text{ cm}^3$$

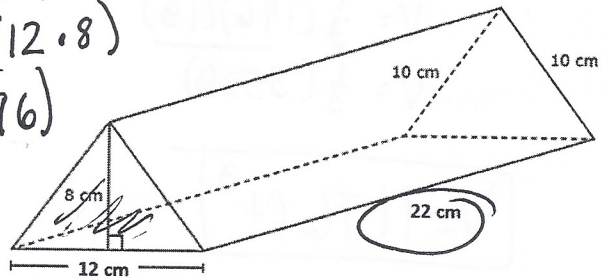
$$B = \frac{1}{2}bh$$

$$B = \frac{1}{2}(12 \cdot 8)$$

$$B = \frac{1}{2}(96)$$

$$B = 48$$

$$h = 22$$



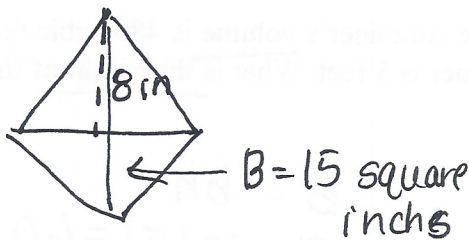
6. A rectangular prism and a rectangular pyramid have the same dimensions. Describe the relationship between the volume of the prism compared to the volume of the pyramid.

The volume of the prism is three times greater than the volume of the pyramid.

7. How do you find the volume of a pyramid?

- ① Find the area of the base (B).
- ② Multiply the area of the base (B) by the height of the pyramid.
- ③ Divide the answer by three.

8. A stereo speaker in the shape of a triangular pyramid has a height of 8 inches. The area of the base of the speaker is 15 square inches. What is the volume of the speaker in cubic inches?



$$V = \frac{1}{3}Bh$$

$$V = \frac{1}{3}(15 \cdot 8)$$

$$V = \frac{1}{3}(120)$$

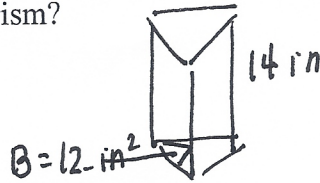
$$V = 40 \text{ in}^3$$

$$\begin{array}{r} 40 \\ 3 \overline{)120} \\ \underline{12} \\ 0 \end{array}$$

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9. A triangular prism has a height of 14 inches and a base area of 12 square inches. What would be the volume of this triangular prism?



$$V = Bh$$

$$V = 12(14)$$

$$V = 168 \text{ in}^3$$

$$\begin{array}{r} 14 \\ \times 12 \\ \hline 28 \\ 140 \\ \hline 168 \end{array}$$

10. Describe how to find the lateral surface area of a 3-D figure.

You would find the area of each surface that is NOT one of the bases and add those areas together.

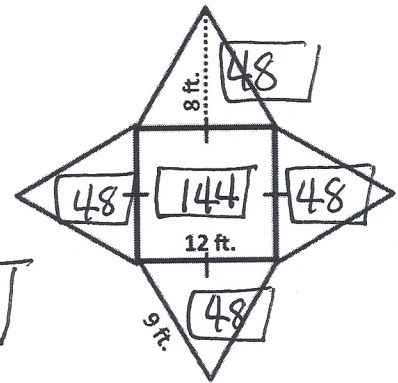
11. The net of a square pyramid and its dimensions are shown in the diagram. What is the total surface area of the pyramid in square feet?

square
bh
 $12(12) = 144$

triangle
 $\frac{1}{2}bh$
 $\frac{1}{2}(12 \cdot 8)$
 $\frac{1}{2}(96)$
 48

$$\begin{array}{r} 2144 \\ 48 \\ 48 \\ 48 \\ 48 \\ \hline 336 \end{array}$$

$$336 \text{ ft}^2$$



12. A net of a cube is shown below. What is the total surface area of the cube in square feet?

square
bh
 $9(9) = 81$

$$\begin{array}{r} 81 \\ \times 6 \\ \hline 486 \text{ ft}^2 \end{array}$$

