

Name \_\_\_\_\_

(Key)

all questions are worth 1 pt each per calculation.

Your score

15 pts

Percent \_\_\_\_\_ %

Unit 9 Pre-test

Possible points

15 pts

Grade \_\_\_\_\_

Make sure to write ALL steps including the formula and units. Show all work!

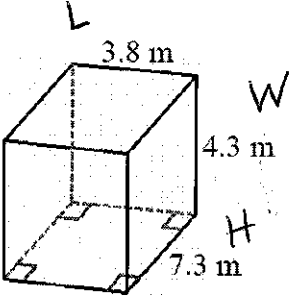
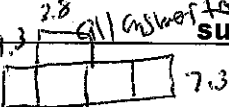
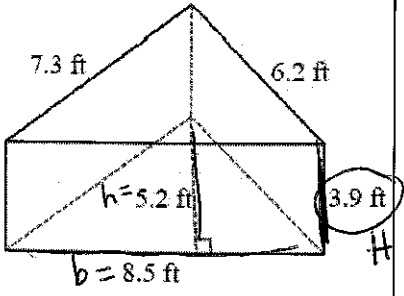
Match the letters A - C with the correct question 1 - 4. Some answers may be used more than once.

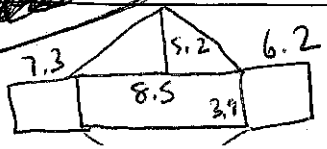
- 1) What will the cross-sectional view parallel to the base look like for a square pyramid? square (C)
- 2) What will the cross-sectional view perpendicular to the base look like for a triangular prism? rectangle (E)
- 3) What will the cross-sectional view perpendicular to the base look like for a square pyramid? triangle (A)
- 4) What will the cross-sectional view parallel to the base look like for a rectangular prism? rectangle (B)

A. triangle B. rectangle C. square

Find the volume and surface area for each shape below. Round to nearest tenth.

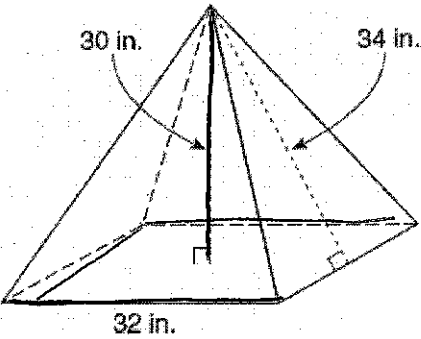
All answers volume units<sup>3</sup>

shape	volume	surface area
<p>5.</p>  <p>Cube!</p>	$V = L \cdot W \cdot H$ $V = 3.8 \times 4.3 \times 7.3$ $V = 119.282 =$ $= 119.3 \text{ m}^3$	 $SA = 2(L \times W) + 2(L \times H) + 2(W \times H)$ $SA = 2(3.8 \times 4.3) + 2(3.8 \times 7.3) + 2(4.3 \times 7.3) =$ $SA = 32.68 + 55.48 + 62.78 =$
<p>6.</p>  <p>triangular prism</p>	$V = \frac{1}{2} b \cdot h \cdot H$ $V = \frac{1}{2} \times 8.5 \times 5.2 \times 3.9$ $V = 86.119 =$ $= 86.2 \text{ ft}^3$	$SA = 2 \left( \frac{1}{2} \times 8.5 \times 5.2 \right) =$ $= 44.2 \text{ ft}^2$ $+ 8.5 \times 3.9 = 33.15 \text{ ft}^2$ $+ 7.3 \times 3.9 = 28.47 \text{ ft}^2$ $+ 6.2 \times 3.9 = 24.18 \text{ ft}^2$



130 ft<sup>2</sup>

Find the volume and surface area for each shape below. Round to nearest tenth.

shape	volume	surface area
<p>7.</p> 	$V = \frac{1}{3} B \cdot h$ $V = \frac{1}{3} * 32^2 * 30$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <math>V = 10,240 \text{ in}^3</math> </div>	$32^2 = 1024 +$ $4 * \frac{1}{2} * 34 * 32 = 2176$ <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;"> <math>3200 \text{ in}^2</math> </div>

8. Find the surface area of a cube with a volume of  $216 \text{ m}^3$ . ← Given

~~SA = 6x^2~~

$V = x^3$

$\sqrt[3]{216} = \sqrt[3]{x^3}$

$6 = x$   
 meters

$V = L \cdot W \cdot H = x \cdot x \cdot x = x^3$

$SA = 2(6 \cdot 6) + 2(6 \cdot 6) + 2(6 \cdot 6) = 72 + 72 + 72 = 216 \text{ meters}$

9. The surface area of a cube is  $96 \text{ in}^2$ . Find the volume of the cube. ← Given

$SA = 6x^2$

$\frac{96}{6} = 16 \text{ in}^2$

↑ area of each circle

$\sqrt{16} = \sqrt{x^2}$

$L \text{ in} = x$

$V = x^3$

$V = 4^3$

$V = 64 \text{ in}^3$

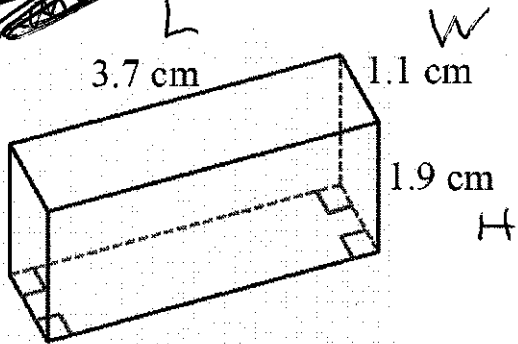
10. Susan covered the box below with sticky-back decorating paper. The paper costs \$.03 per square inch. How much money will Susan need to spend on the paper? Round to the nearest penny. ←

$SA = 2(L \cdot W) + 2(L \cdot H) + 2(W \cdot H)$

$= 2(3.7 * 1.1) + 2(3.7 * 1.9) + 2(1.1 * 1.9) =$

$SA = 8.14 + 14.06 + 4.18 = 26.38 = 26.4 \text{ cm}^2$

$26.4 * 0.03 = \$0.792 = 79 \text{ cents}$



11. Freddie purchased a box of crackers from the deli. The box is in the shape of the triangular prism shown below. The volume of the box is 92.45 in<sup>3</sup>.

- a) What is the height ( $h$ ) of the triangular face of the box?  
 b) How much cardboard is needed to construct the cracker box?

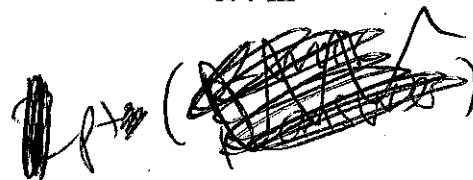
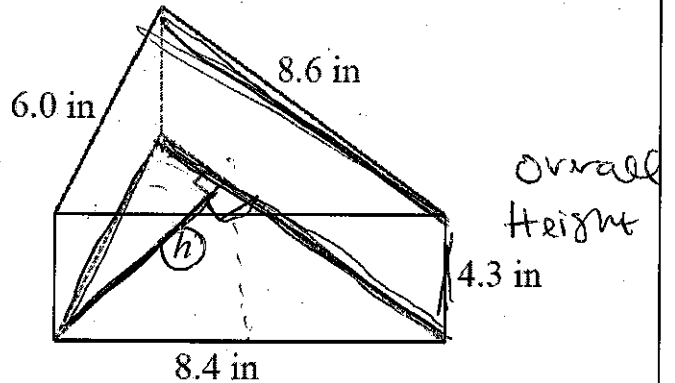
a)

$$V = \frac{1}{2} \cdot b \cdot h \cdot H$$

$$92.45 = \frac{1}{2} \cdot 8.6 \cdot h \cdot 4.3$$

$$\frac{92.45}{18.49} = \frac{18.49h}{18.49}$$

$$5 \text{ in} = h$$



b) SA =

$$2 \cdot \left( \frac{1}{2} \cdot 8.6 \cdot 5 \right) = 43$$

$$4.3 \cdot 8.6 = 36.98$$

$$6.0 \cdot 4.3 = 25.8$$

$$8.4 \cdot 4.3 = 36.12$$

$$141.9 \text{ in}^2$$

$$141.9 \text{ in}^2$$

