

**Show all your work since partial credit is based on work shown! Also be sure to include units with your answer where appropriate.**

5pts

1. **To measure** each item, select the **most appropriate unit** from this list:  
mm, cm, m, km, mL, kg.

- a. length of this room: \_\_\_\_\_
- b. volume of a can of cola: \_\_\_\_\_
- c. length of your textbook: \_\_\_\_\_
- d. distance from UNCW to UNCC: \_\_\_\_\_
- e. weight of a person: \_\_\_\_\_

8pts

2. Complete the following:

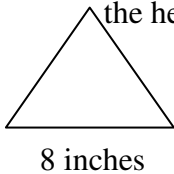
- a. 7.6 meters = \_\_\_\_\_ centimeters
- b. 5000 sq centimeters = \_\_\_\_\_ sq meters
- c.  $50^{\circ}\text{F} = \text{_____}^{\circ}\text{C}$
- d. 1500 cubic cm = \_\_\_\_\_ Liters

5pts

3. Show your work in making the following conversion: (Note: 1 mile = 5280 feet.)  
The speed of sound is 1100 feet / second at sea level. Express this speed of sound in miles / hour.

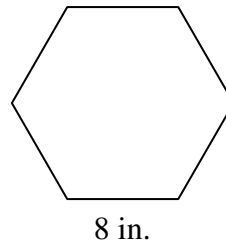
5pts

4. a. Use the pythagorean theorem to find the height in this equilateral triangle.



7pts

4. b. Find the area of this hexagon.



6pts

5. Draw a sketch of a trapezoid and give the formula for its area. (Label the sketch to go with your formula.)

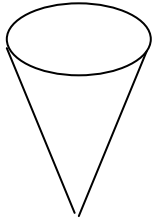
6pts

6. Explain how the formula for the area of a circle can be developed from the formula for the area of a parallelogram. Include a sketch. (Typical 6<sup>th</sup> grade method using pie shaped pieces.)

16pts

7. Pictured below is a “drumstick” ice cream cone with radius of 5 cm and height of 12 cm.

- a. What is the volume of ice cream in this cone?    b. How much paper would it take to package the ice cream cone?    **(For each part, write a brief description of the volume or surface area before you do the calculations.)**

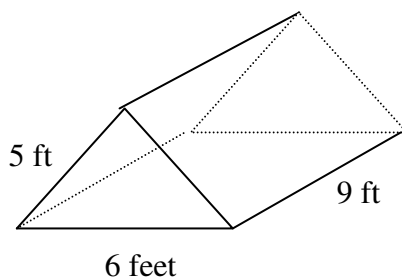


16pts

8. The end of the tent pictured below is an isosceles triangle, with a base of 6 feet and other sides of 5 feet. The tent is 9 feet long.

- a. What is the volume of air inside the tent?    b. How much material would it take to make this tent?

**(For each part, write a brief description of the volume or surface area before you do the calculations.)**



6pts

7. True or false? If false, explain why or correct the statement.

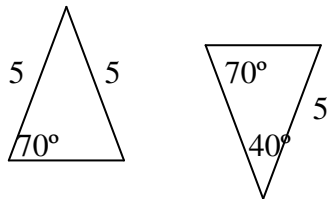
\_\_\_\_\_ a. The formula for the surface area of a circular cylinder is  $\pi r^2 + 2\pi r h$ .

\_\_\_\_\_ b. All rectangles are similar.

\_\_\_\_\_ c. One cubic centimeter of water has a mass of 1 gram.

5pts

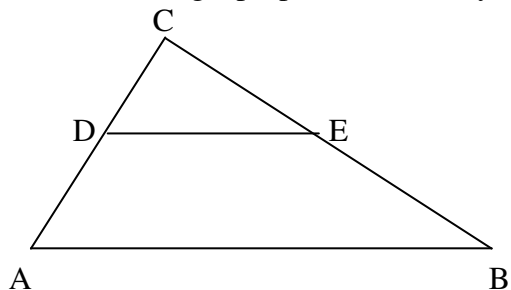
8. Is the following pair of triangles congruent? \_\_\_\_\_ Justify your conclusion.



10pts

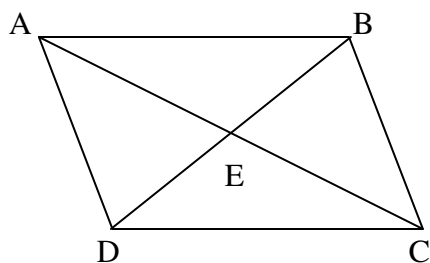
9. a. If  $\angle CAB \cong \angle CDE$  in the figure below, explain why triangles ABC and DEC are similar triangles.

b. The length of DE is 7 cm, AB is 12 cm and CD is 3 cm. Find the length of CA. Solve using a proportion. Show your work.



5pts

10. Prove that the diagonals of a parallelogram bisect each other.



$\angle EBA \cong \angle EDC$  because

$\angle EAB \cong \angle ECD$  because

$AB \cong CD$  because

Therefore  $\triangle ABE \cong \triangle CDE$  because

Thus  $AE \cong CE$  and  $BE \cong DE$  because