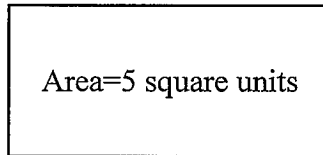


MATH 106 – QUIZ 6

Name _____

Show all work necessary. Use complete sentences for any explanations. Good luck!

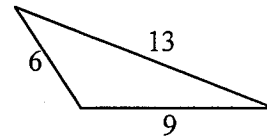
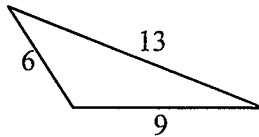
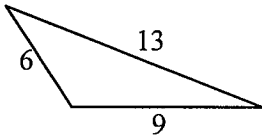
1. (2 points) What is the area of a smaller rectangle similar to the one shown with a size change of scale factor 2?



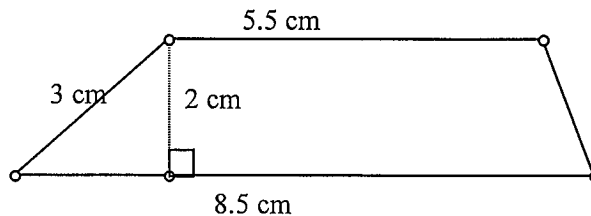
Area of new rectangle = _____ square units.

2. (2 point) What is the area of a rectangle with perimeter 20 meters and base 6 meters?
A. 120 m² B. 60 m² C. 160 m² D. 24 m² e. 84 m²

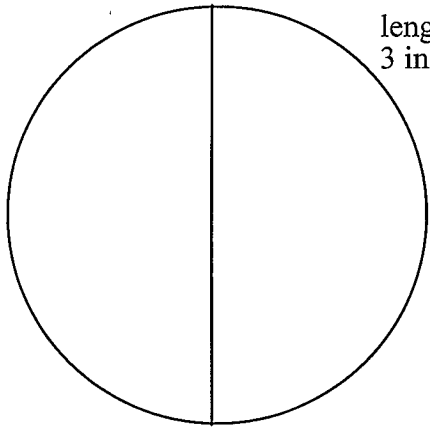
3. (3 points) The area of the triangle below is 24 square units. Each of the sides in a triangle can be used as a base. For each of the triangles shown, choose a different side as the base and then draw the corresponding height for that base. Find the measurement of that height.



4. (3 points) What is the area of the trapezoid shown below? Be sure to include the correct units. Area = _____



5. (2 points) What is the circumference and area of the circle below? Give exact answers. Be sure to include correct units.

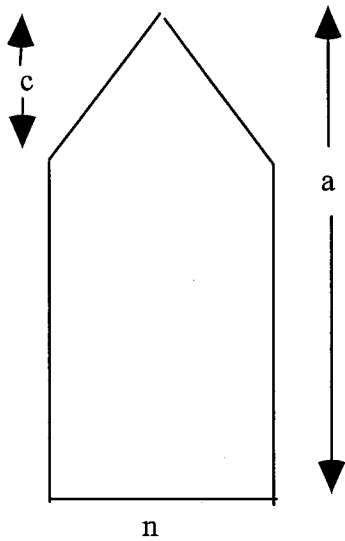


length of
3 inches

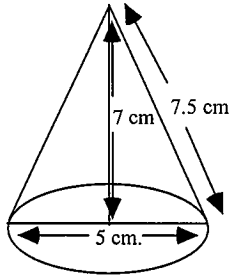
Circumference = _____

Area = _____

6. (2 points) Find the volume and surface (2 points) Find an expression for the area of the following figure, in terms of the indicated measurements: Area = _____

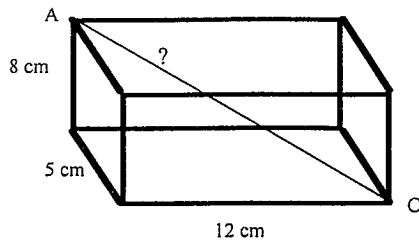


7. (2 point) Find the volume of the cone with the following dimensions. Give exact answer.



Volume = _____

8. (4 points) Find the volume and surface area of the right rectangular prism shown:

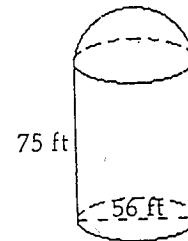


Volume = _____

Surface area = _____

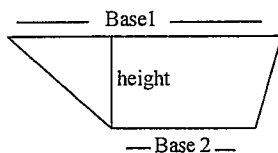
9. (3 points) Find the volume of the cylindrical grain silo that has a hemispherical top. Give approximate answer.

Volume = _____



10. (2 points) Explain why a formula for the area of a trapezoid is (assume you know the area formula for a parallelogram is $A = bh$):

$$A_{\text{trap}} = \frac{1}{2} (\text{base}_1 + \text{base}_2)(\text{height})$$



11. (1 point extra credit) This figure shows a cubical box with a sphere that fits just inside. That is, the length, width, and height of the box are each equal to the diameter of the ball. What percent of the volume of the box is not occupied by the ball? (Hint: use our ratio idea from class, use $\pi = 3.1416$, and round final answer to the nearest percent)

