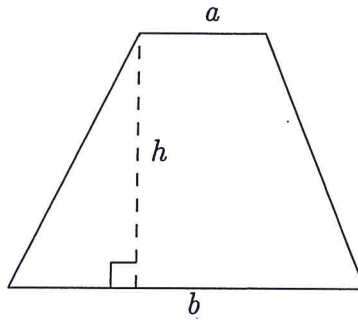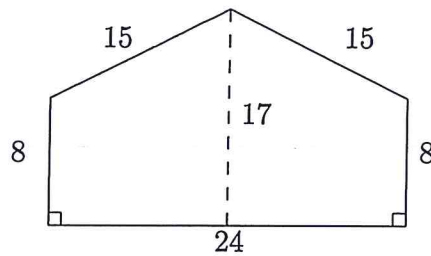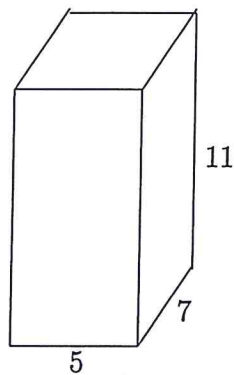6 (7 pts) Find the area of the following figure, given that $a = 2$, $b = 7$ and $h = 5$.

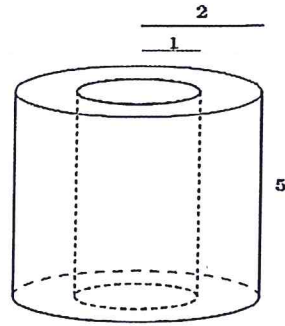

14 (10 pts) Find the area and the perimeter of the following figure:

24 (8 pts) Find the volume and surface area of the following rectangular box.

**31** (8 pts) Find the volume of the following figure:

47 (8 pts) One cord of wood contains 128 cubic feet. If a cord of seasoned oak wood costs $140, how much should it cost to buy a pile 4 feet wide, 6 feet high, and 10 feet long?
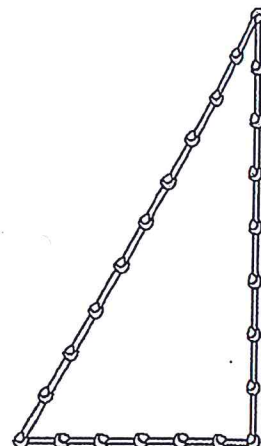
55 (7 pts) The area of a square window is 144 square inches. Find the perimeter of the window.

59 (6 pts) Determine whether each configuration of knotted ropes would form a right triangle. Justify your answers with the Pythagorean Theorem.

(a)
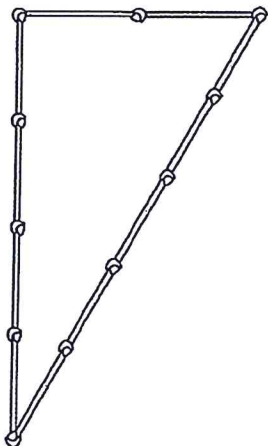
(b)

67 (9 pts) For a circle of radius 9 palms, do the following:

(a) Use $\pi = \frac{256}{81}$ (the Egyptian approximation of pi) to find the area of the circle to three decimal places.

(b) Use the value of π contained in a scientific calculator to find the area of the circle to three decimal places.

(c) Find the error of the Egyptian calculation relative to the calculator value.

73 (6 pts) The following triangles are similar. Find the lengths of the missing sides.
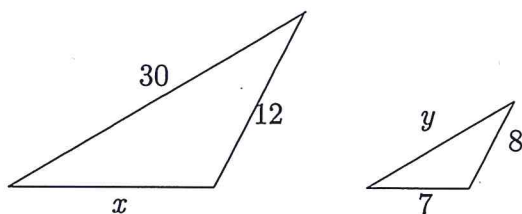
81 (6 pts) Use the following diagrams to show that $a^2 + b^2 = c^2$. (Hint: The area of square #1 = area of square #2.)
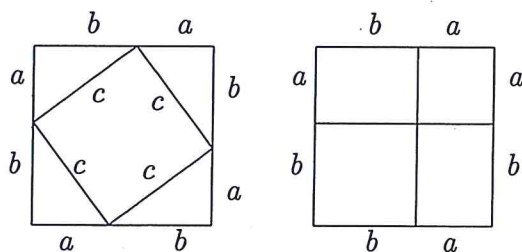
87 (7 pts) A regular octagon (8-sided polygon) is inscribed in a circle of radius r. The length of a side of the inscribed octagon is $s = \sqrt{2 - \sqrt{2}}r$. Using the perimeter of this polygon as an approximation to the circumference of the circle, obtain a 3-decimal place estimate of π.

94 (6 points) Suppose you are given a line and a point not on that line. How many parallels to the line can be drawn through the given point in

(a) Elliptic Geometry?

(b) Hyperbolic Geometry?

(c) Euclidean Geometry?

95 (6 points) Every surface has a geometry all its own. Give examples of surfaces which have the following geometries.

(a) Elliptic Geometry

(b) Hyperbolic Geometry

(c) Euclidean Geometry

98 (6 points) Depending on the geometry you're working in, the sum of the angles in a triangle can be either equal to, greater than, or less than 180°. Which is the case for

(a) Elliptic Geometry?

(b) Hyperbolic Geometry?

(c) Euclidean Geometry?