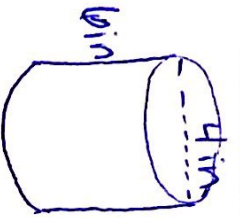


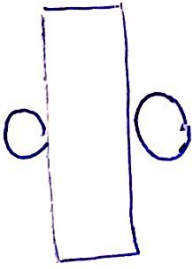
**GUIDED NOTES: Geometric Modeling**

EX1. Determine the surface area of a cylindrical glass with a height of 6 inches and a diameter of 4 inches.



$$A = \pi r^2 = 3.14(2)^2 = 12.56$$

$$A = \lambda W = 6(2 \cdot 3.14 \cdot 2) = 75.36$$



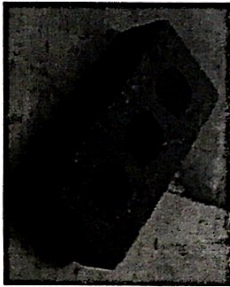
$$SA = 2(12.56) + 75.36 = 100.48 \text{ in}^2$$

EX2. A brick has a length of 10 inches, a width of 4 inches, and a height of 2 inches. There are three identical cylinders with a radius of 1 inch missing out of the middle of the brick. Determine the volume of the brick.

Volume of solid Brick

$$A = 10(4) = 40$$

$$V = 40(2) = 80 \text{ in}^3$$



Volume of Actual Brick

$$V = 80 - (3 \cdot 6.28)$$

$$= 61.16 \text{ in}^3$$

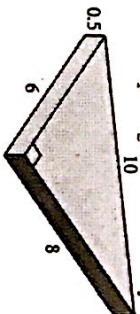
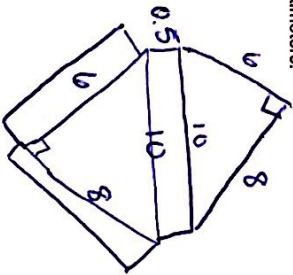
Volume of 1 Cylinder

$$A = \pi r^2 = 3.14(1)^2 = 3.14$$

$$V = 3.14(2) = 6.28 \text{ in}^3$$

EX3. Eight wooden spheres, each with a radius of 3 inches, are packed snugly into a square box that is 12 inches on one side. The remaining space is filled with packing beads. What is the volume occupied by the packing beads?

EX4. You are producing 500 of these metal wedges, and you must electroplate them with a thin layer of high-conducting silver (surface area). The measurements shown are in centimeters. Find the total cost for silver, if silver plating costs \$3 for every 200 square centimeters.



Surface Area of 1 Wedge

$$A = \frac{1}{2}bh = \frac{1}{2}(6)(8) = 24$$

$$A = \lambda W = 0.5(10) = 5$$

$$A = 0.5(6) = 3$$

$$A = 0.5(8) = 4$$

$$SA = 2(24) + 5 + 3 + 4 = 60 \text{ cm}^2$$

$$60(500) = 30,000 \text{ cm}^2 \text{ of silver}$$

$$30,000 \div 200 = 150 \text{ of } 200 \text{ cm}^2$$

$$150(3) = 450$$