

Chapter 1

Basic Geometry

1.1 Terms and Formulas from Geometry

Angles: degree-measure, acute, right, obtuse, straight, reflex

Triangles: acute, right, scalene, isosceles, equilateral

Quadrilaterals: parallelogram, rectangle, square(a special rectangle), rhombus, trapezoid

Polygons: triangle, quadrilateral, pentagon, hexagon, octagon, decagon, dodecagon, icosagon

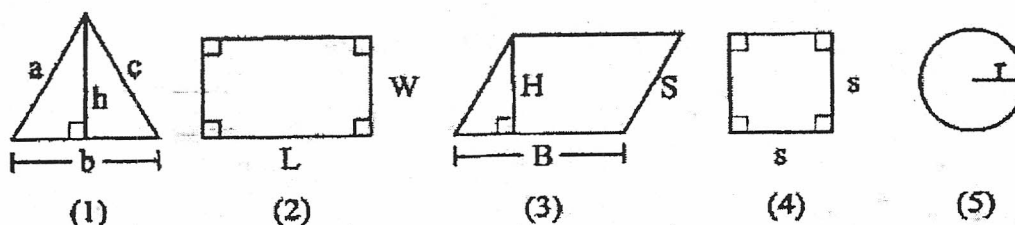
Area is the number of square units contained in a closed region.

Perimeter is the length of the boundary of a closed plane figure

Circumference is the perimeter of a circle.

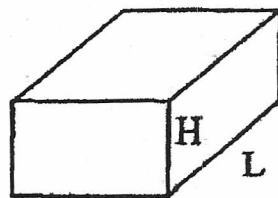
Congruent Figures are plane figures that have exactly the same size and shape. If two polygons are congruent, their corresponding sides and angles will have the same measure.

1.2 Geometry Formulas

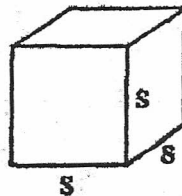


Plane Figure	Perimeter(P)	Area(A)
(1) Triangle	$P = a + b + c$	$A = \frac{1}{2}b \cdot h$ or $\frac{1}{2}bh$
(2) Rectangle	$P = 2L + 2W$	$A = L \cdot W$ or LW
(3) Parallelogram	$P = 2B + 2S$	$A = B \cdot H$ or BH
(4) Square	$P = 4 \cdot s$ or $4s$	$A = s \cdot s$ or s^2
(5) Circle	$C = 2\pi r$	$A = \pi \cdot r \cdot r$ or πr^2

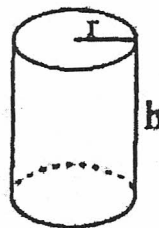
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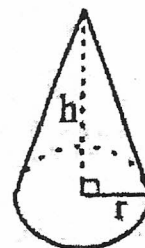
(1)



(2)



(3)



(4)

Solid

(1) Rectangular Solid

(2) Cube

(3) Cylinder

(4) Cone

Volume (V)

$$V = L \cdot W \cdot H \text{ or } LWH$$

$$V = s \cdot s \cdot s \text{ or } s^3$$

$$V = \pi \cdot r^2 \cdot h \text{ or } \pi r^2 h$$

$$V = \frac{1}{3} \cdot \pi \cdot r^2 \cdot h \text{ or } \frac{1}{3} \pi r^2 h$$

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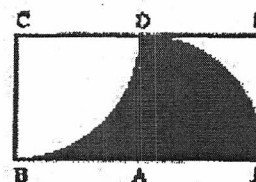
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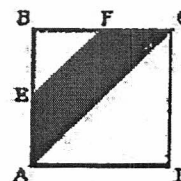
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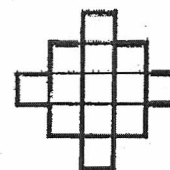
16. As shown, $ABCD$ and $AFED$ are squares with a common side AD of length 10 cm. Arc BD and arc DF are quarter-circles. How many square cm, are in the area of the shaded region?



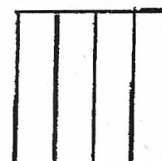
17. $ABCD$ is a square with area 16 sq. meters. E and F are midpoints of sides AB and BC , respectively. What is the area of trapezoid $AEFC$, the shaded region?



18. Each of the small boxes in the figure shown is a square and the area of the figure is 52 square units. How many units are there in the outer perimeter of the figure?



19. The square shown is divided into four congruent rectangles. The perimeter of each of the four congruent rectangles is 25 units. How many units are there in the perimeter of the square?



20. Twenty-four meters of fencing is used to fence a rectangular garden. Let M represents the number of square meters in the area of the garden. What is the largest value that M could have?