

## Geometry

### Definitions:

perimeter: the distance around a figure

circumference: the distance around a circle

area: the number of square units in a region

$\Pi$  (pi): the ratio of the circumference of a circle to its diameter, approximately 3.14

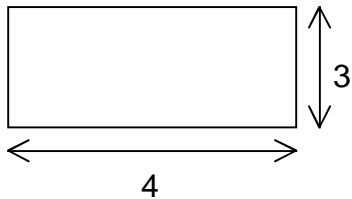
diameter: straight line through the center of a circle or sphere

radius: straight line between the center of a circle or sphere to any point on its surface (one half of diameter)

### Perimeter:

Rectangles:  $P = 2l \times 2w$ , where  $P$  = perimeter,  $l$  = length, and  $w$  = width.

Example: If a rectangle has a length of 3 and a width of 4, then the perimeter is  $(2 \times 3) + (2 \times 4) = 6 + 8 = 14$ .



Other Polygons: Simply add the measure of all sides of the polygon.

Example: If a triangle's sides measure 3, 6, and 8, then the perimeter is  $3 + 6 + 8 = 17$ .

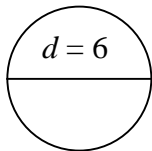
### Circumference:

$C = 2\Pi r$  or  $C = \Pi d$ , where  $C$  = circumference,  $\Pi$  = pi,  $r$  = radius, and  $d$  = diameter.

Example: If the circle's diameter is 6, its radius is 3.

$$2\Pi r = 2 \times 3.14 \times 3 = 18.84$$

$$\Pi d = 3.14 \times 6 = 18.84$$

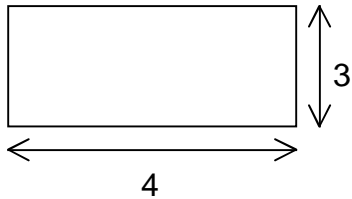


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### Area:

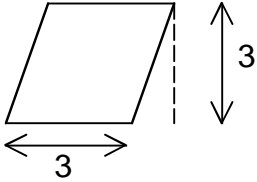
Rectangles:  $A = l \times w$ , where  $A$  = area,  $l$  = length, and  $h$  = height

Example: If a rectangle has a length of 3 and a width of 4, then the area is  $3 \times 4 = 12$ .



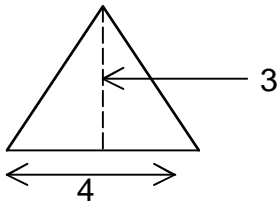
Parallelogram:  $A = bh$ , where  $A$  = area,  $b$  = base, and  $h$  = height

Example: If a parallelogram has a base of 3 and a height of 3, then the area is  $3 \times 3 = 9$ .



Triangle:  $A = 1/2 bh$ , where  $A$  = area,  $b$  = base, and  $h$  = height

Example: If a triangle has a base of 4 and a height of 3, then the area is  $1/2 (3 \times 4) = 1/2 \times 12 = 6$ .



Circle:  $A = \pi r^2$ , where  $A$  = area,  $\pi$  = pi, and  $r$  = radius

Example: If a circle has a diameter of 6, then it has a radius of 3. So the area is  $3.14 \times 3^2 = 3.14 \times 9 = 28.26$

