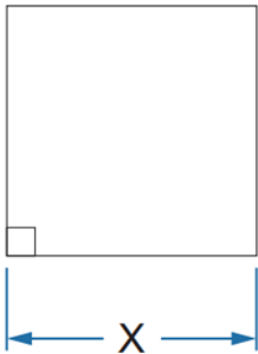


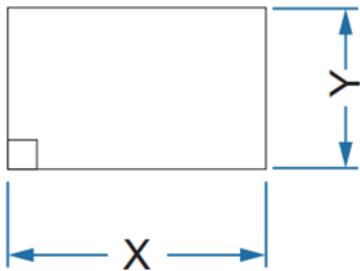
### Calculating area and volume.

**Definition:** A square has four sides, with each being equal in length. Each of the four internal angles are right angles, 90 degrees.



**FORMULA**  
 $AREA = X^2$   
 OR  $X = X$  multiplied by  $X$

$X$  IS THE LENGTH OF ONE SIDE  
 REMEMBER, WITH A SQUARE,  
 EACH SIDE IS THE SAME LENGTH



**FORMULA**  
 $AREA = X$  multiplied by  $Y$   
 $AREA = LENGTH \times HEIGHT$

Shape	Name	Formula for Volume
	Prism	Cross-sectional area x length
	Cone	$\frac{1}{3} \times \pi r^2 \times height$
	Pyramid	$\frac{1}{3} \times length \times width \times height$
	Sphere	$\frac{4}{3} \times \pi r^3$

### Energy Efficiency

The energy efficiency of a device can be calculated using the following formula:

$$Energy\ Efficiency = \frac{Useful\ Output\ Energy}{Total\ Input\ Energy}$$

$$Energy\ Efficiency = \frac{Useful\ Power\ Output}{Total\ Power\ Input}$$

## mean

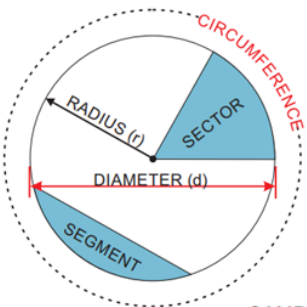
The mean is the average or norm.

- Add up all of the values to find a total.
- Divide the total by the number of values you added together.

$2 + 2 + 3 + 5 + 5 + 7 + 8 = 32$   
 There are 7 values

$32 \div 7 = 4.57$   
 Divide the total by 7

**The mean is 4.57**



**FORMULA**  
 $AREA = \pi r^2$   
 $\pi$  (pi) = 3.14

### Ohm's law

**V = Voltage (Volts)** (Pressure)      **I = Intensity (Amps)** (Flow)      **R = Resistance (Ohms)** (Restriction to Flow)

$V = I \times R$

If you know the Amps (I) and the Resistance (R), multiply I x R to find the Voltage (V)

$I = V \div R$

If you know the Volts (V) and the Resistance (R), divide V x R to find the Amps (I)

$R = V \div I$

If you know the Amps (I) and the Volts (V), divide V x I to find the Resistance (R)

### Key Terms

**Footprint:** the area of land each building takes up.

**Perpendicular:** something that is 90 degrees to a given line

**Compound shape:** a non-standard shape.

**Prism:** a solid shape that has two ends of the same shape and size. The length can vary.

**Efficiency:** the ratio of the useful work performed by a machine or in a process to the total energy expended or heat taken in.