

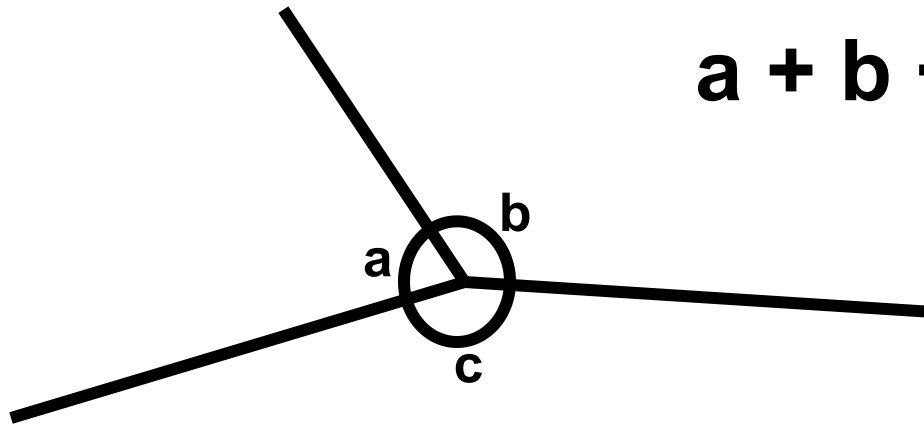
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Angles on a Point

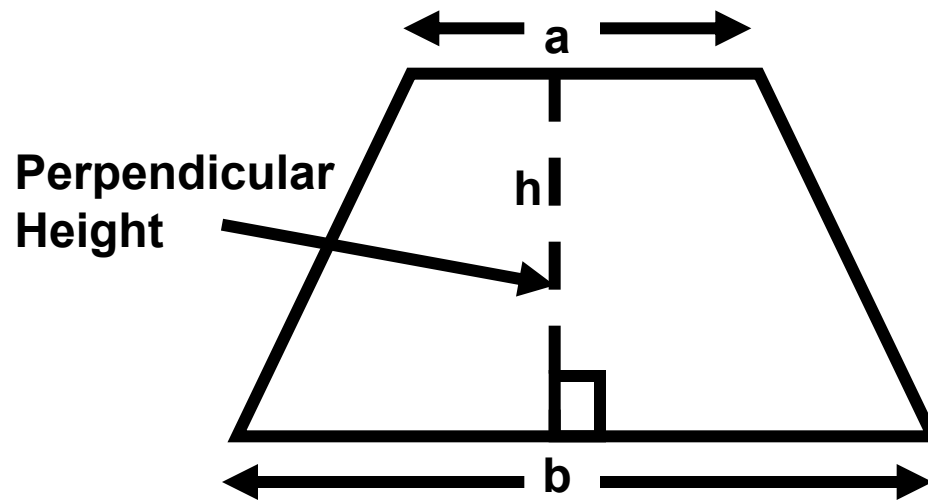
- **Always add up to 360°**



$$a + b + c = 360^\circ$$

Area of a Trapezium

- **Add the parallel sides, multiply by the perpendicular height, then divide by 2. Formula is $\frac{1}{2}(a+b)h$**



Time

60 seconds = 1 minute

60 minutes = 1 hour

24 hours = 1 day

7 days = 1 week

365 days = 1 year

366 days = 1 leap year

Metric Measures

10 millimetres = 1 centimetre

100 centimetres = 1 metre

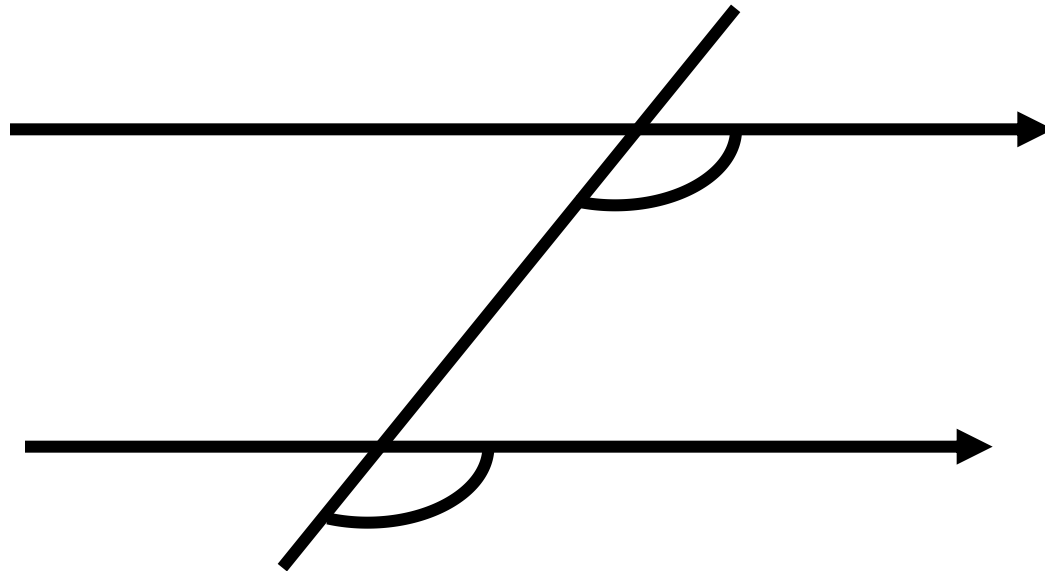
1000 metres = 1 Kilometre

Triangular Numbers

- **A number which can be drawn by a triangle of dots. Add 1 to the difference between the last two terms to make the next term.**
- **1, 3, 6, 10, 15, 21, 28, 36, 45, 55, 66, 78, 91, 105, . . .**

Corresponding Angles

- **Known as “F” angles**
- **They are always equal**



Inequalities

$a > b$ a is greater than b

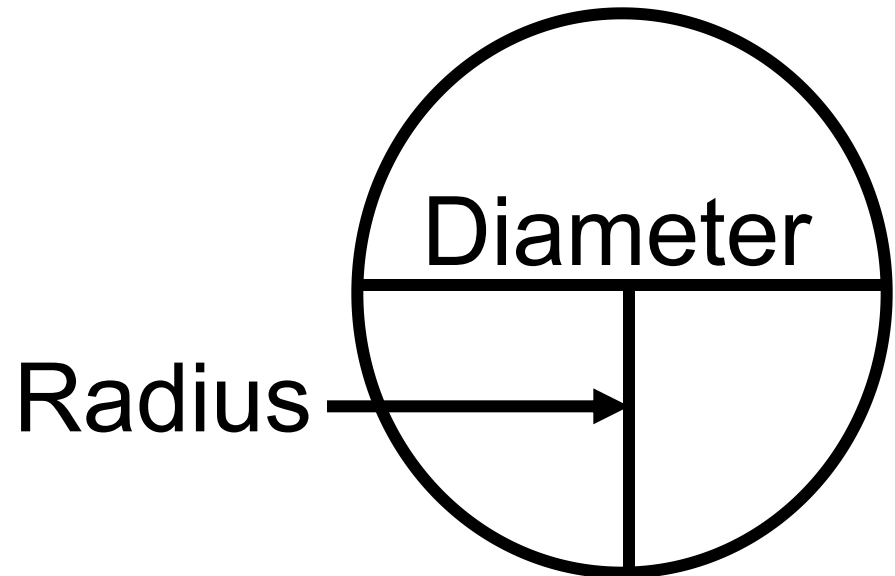
$a < b$ a is less than b

**$a \geq b$ a is greater than or equal
to b**

$a \leq b$ a is less than or equal to b

Circumference of a Circle

- **Circumference = pi × diameter**
- **Circumference = 2 × pi × radius**
- **$C = \pi d$**
- **$C = 2\pi r$**



$$\text{Pi} = \pi$$

- π is a never ending number that never repeats.
- **Pi = 3.1415926535897932384626
4338327950288419716939937510
5820974944592307816406286208
9986280348253421170679821480
8651328230664709384460955058
2231725359408128481117450.....**

Imperial Weights

16 ounces (oz) = 1 pound (lb)

14 pounds = 1 stone

112 pounds = 1 hundredweight

2240 pounds = 1 ton

BEDMAS

B = Brackets

E = Exponents

D = Division

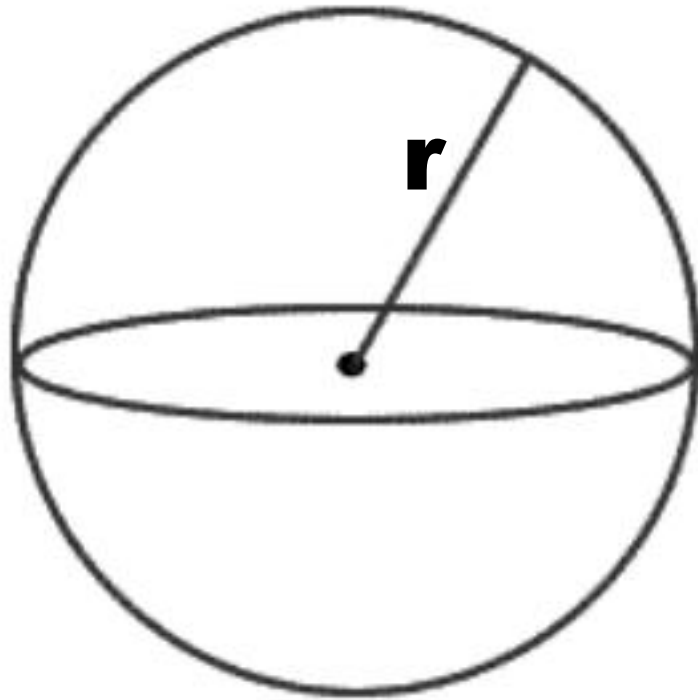
M = Multiplication

A = Addition

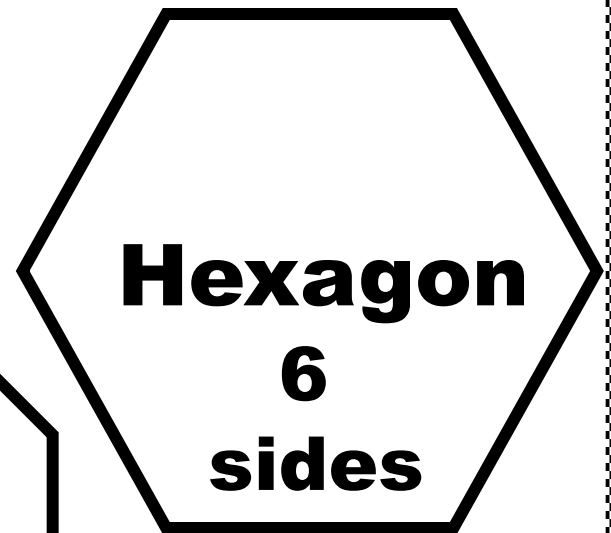
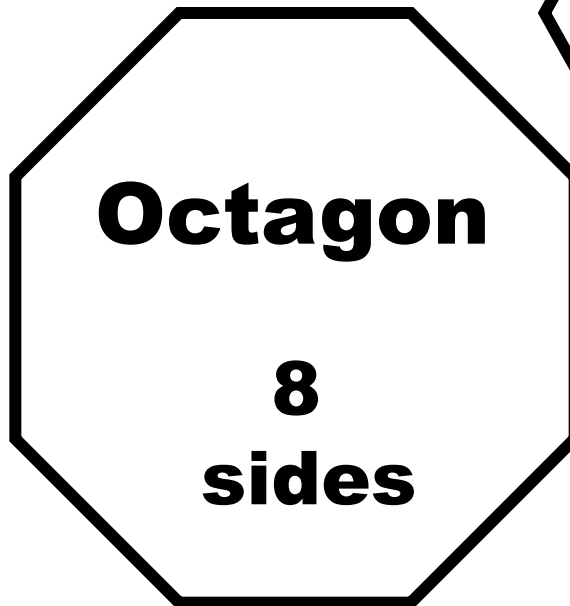
S = Subtraction

Volume of a Sphere

$$\text{Volume} = \frac{4}{3} \times \pi \times r^3$$

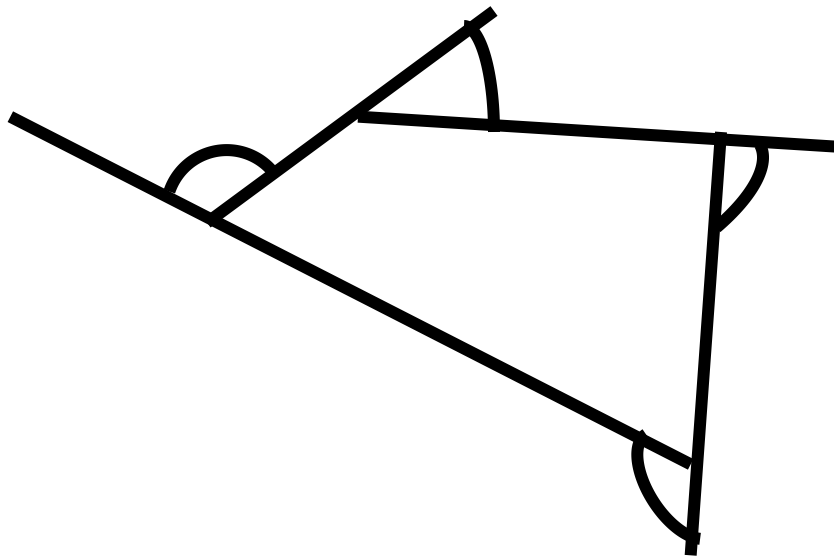


Shape Names



External Angles

- **The sum of external angles on any polygon always add up to 360°**

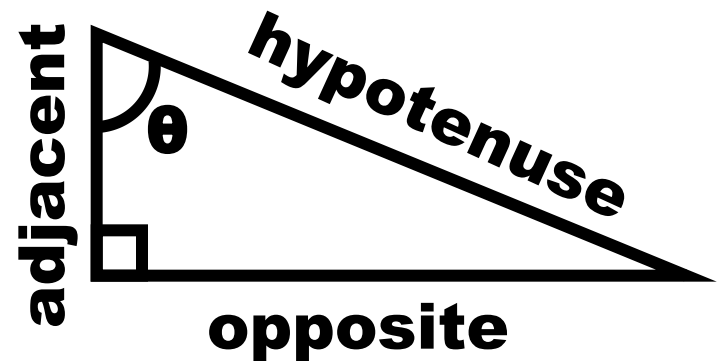
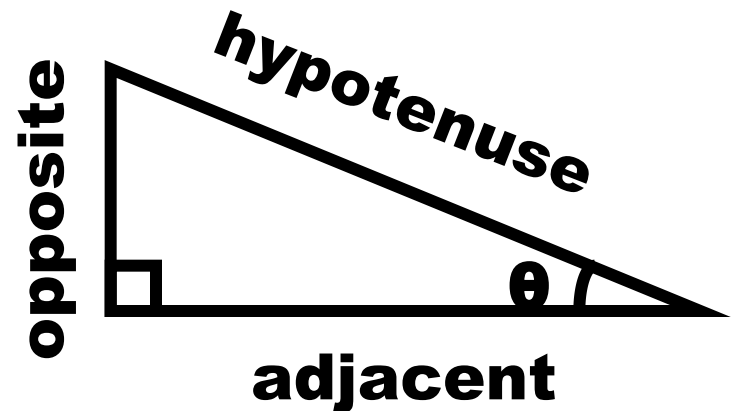


SOH-CAH-TOA

$$\sin \theta = \frac{\textit{opposite}}{\textit{hypotenuse}}$$

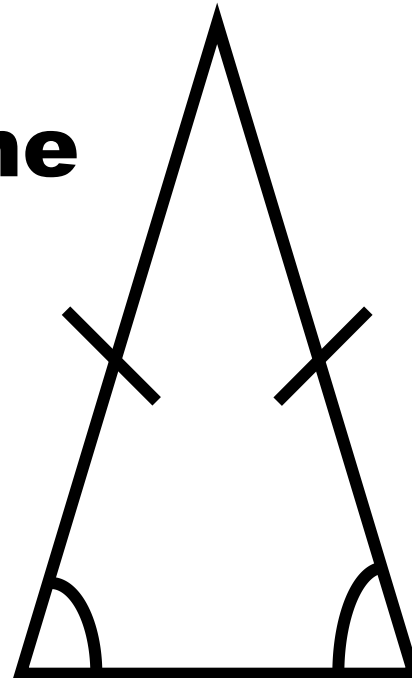
$$\cos \theta = \frac{\textit{adjacent}}{\textit{hypotenuse}}$$

$$\tan \theta = \frac{\textit{opposite}}{\textit{adjacent}}$$



Isosceles Triangle

- **2 Sides are the same**
- **2 Angles are the same**



Parallelogram

- **Opposite sides are the same length**
- **Opposite angles equal**
- **Opposite sides parallel**



12/24 hour time

0100 = 1.00 am

0200 = 2.00 am

0300 = 3.00 am

0400 = 4.00 am

0500 = 5.00 am

0600 = 6.00 am

0700 = 7.00 am

0800 = 8.00 am

0900 = 9.00 am

1000 = 10.00 am

1100 = 11.00 am

1200 = 12.00 am

1300 = 1.00 pm

1400 = 2.00 pm

1500 = 3.00 pm

1600 = 4.00 pm

1700 = 5.00 pm

1800 = 6.00 pm

1900 = 7.00 pm

2000 = 8.00 pm

2100 = 9.00 pm

2200 = 10.00 pm

2300 = 11.00 pm

2400 = 12.00 pm

Dimensions

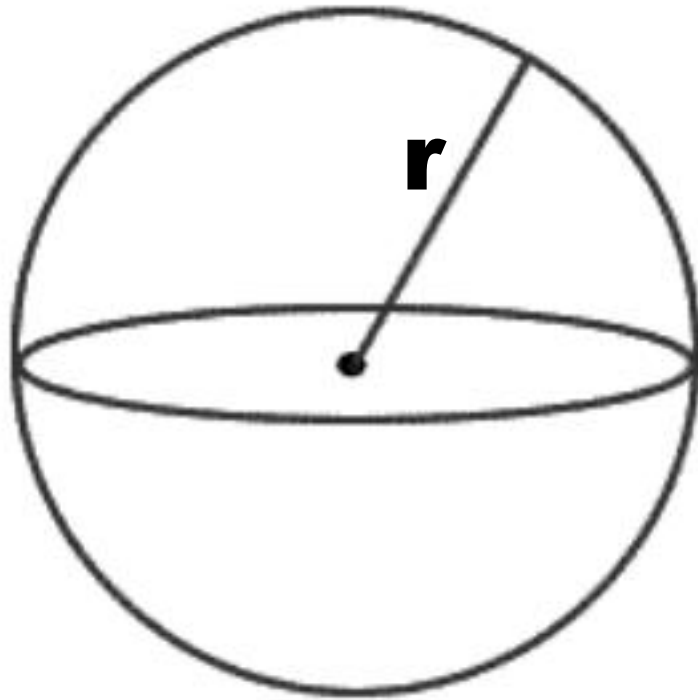
Length = units

Area = units²

Volume = units³

Surface Area of a Sphere

$$\text{Surface area} = 4 \times \pi \times r^2$$



Metric Capacity

1000 millilitres (ml) = 1 litre (l)

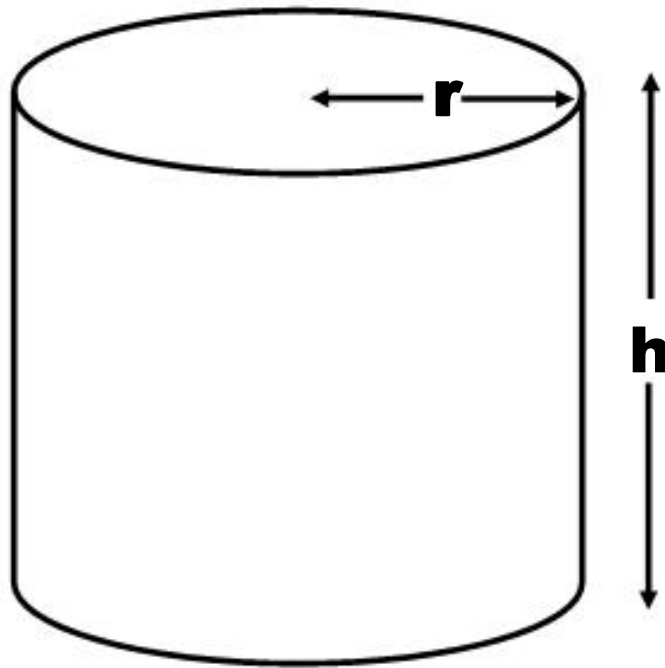
1000 cm³ = 1 litre

1000 cc = 1 litre

1000 litres = 1 metre³

Volume of a Cylinder

$$\text{Volume} = \pi r^2 h$$



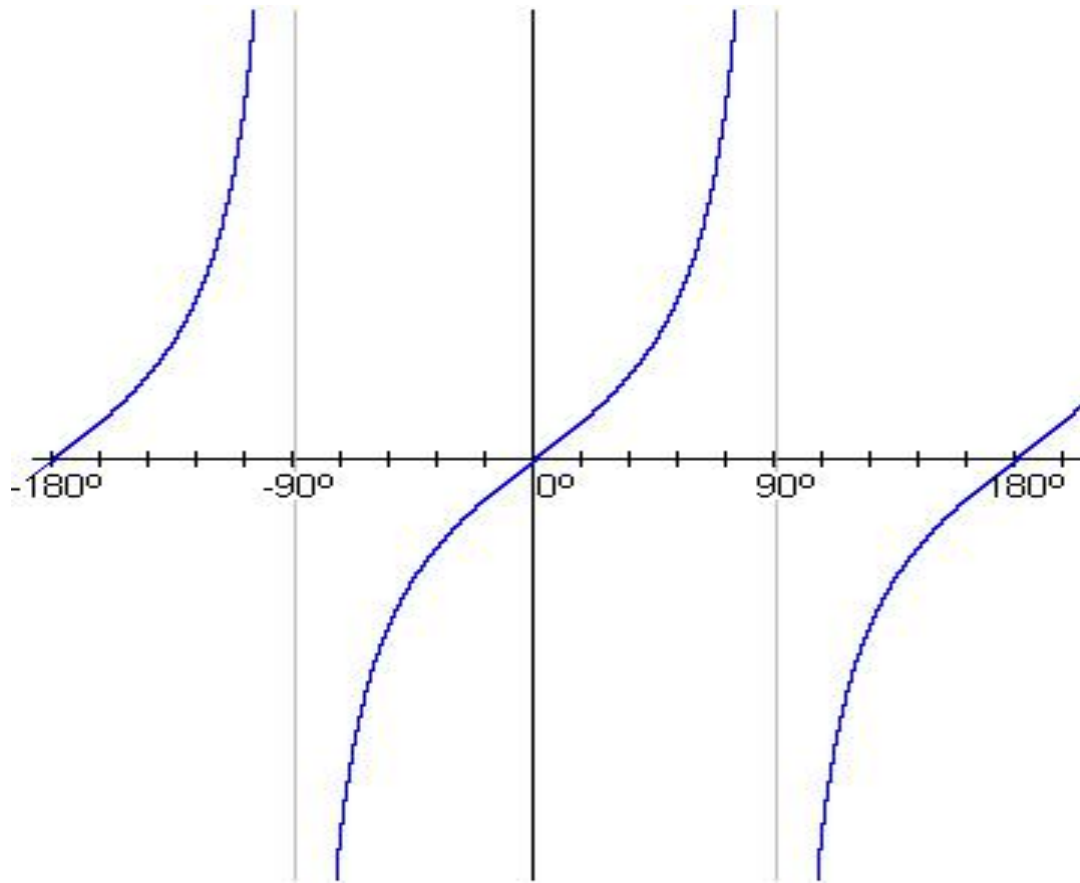
Mode

- **The number (or data item) that occurs the most.**

• **Example : 8 4 8 5 2 9 8**

• **Answer : The Mode is 8**

Tangent Curve



$$y = \tan(x)$$

Negative Numbers

Multiplication

$$+ \times + = +$$

$$+ \times - = -$$

$$- \times + = -$$

$$- \times - = +$$

Division

$$+ \div + = +$$

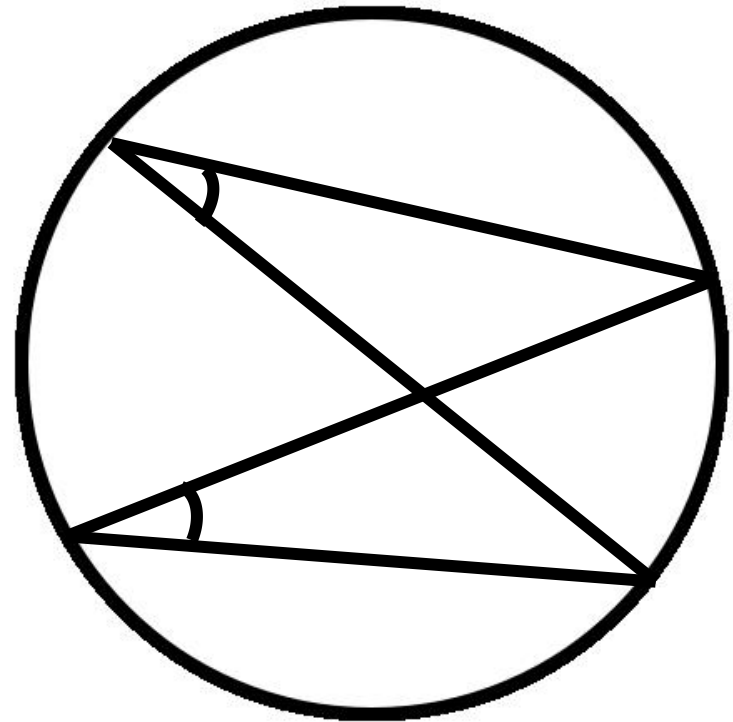
$$+ \div - = -$$

$$- \div + = -$$

$$- \div - = +$$

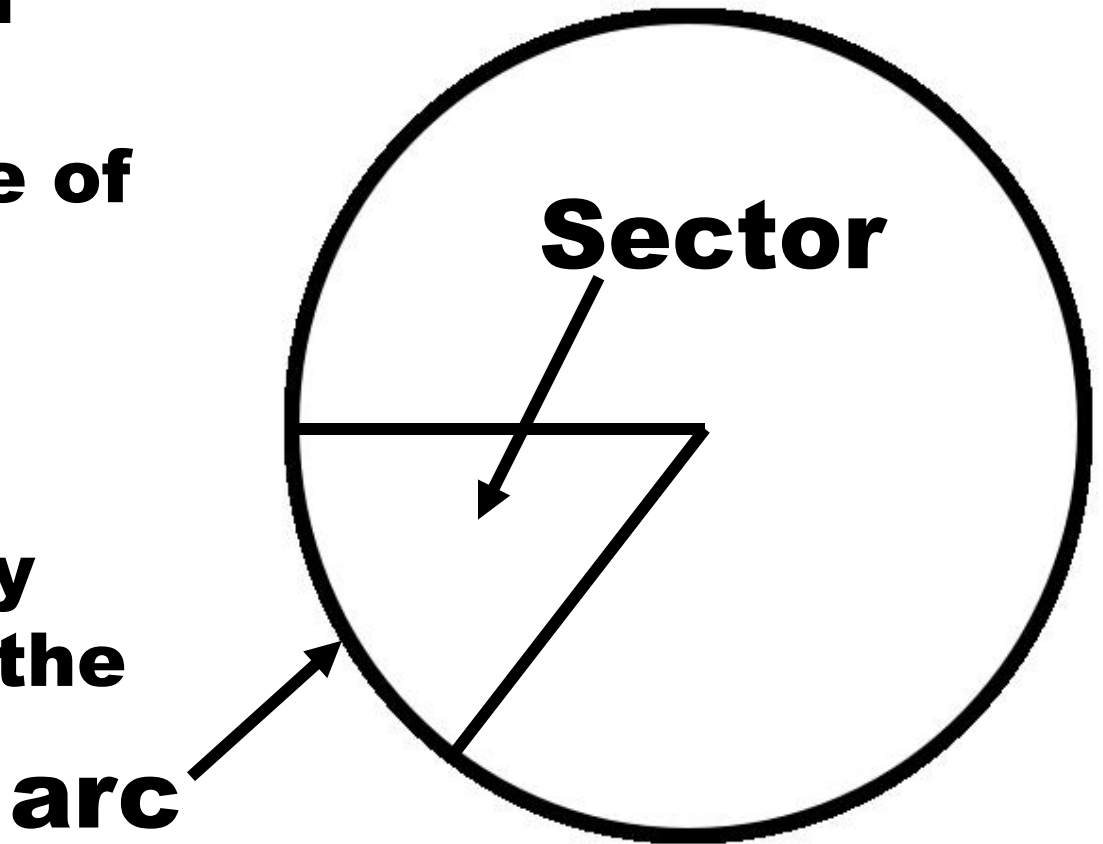
Angles Subtended on the Same Arc

- **The angles at the circumference subtended by the same arc are equal**



Arc and Sector

- **Arc = a part of the circumference of a circle**
- **The part of a circle made by two radii and the included arc.**



GCF

Greatest Common Factor

- **This is the biggest number that goes into two or more numbers**
- **Example HCF of 12 and 20 is 4**

LCM

Lowest Common Multiple

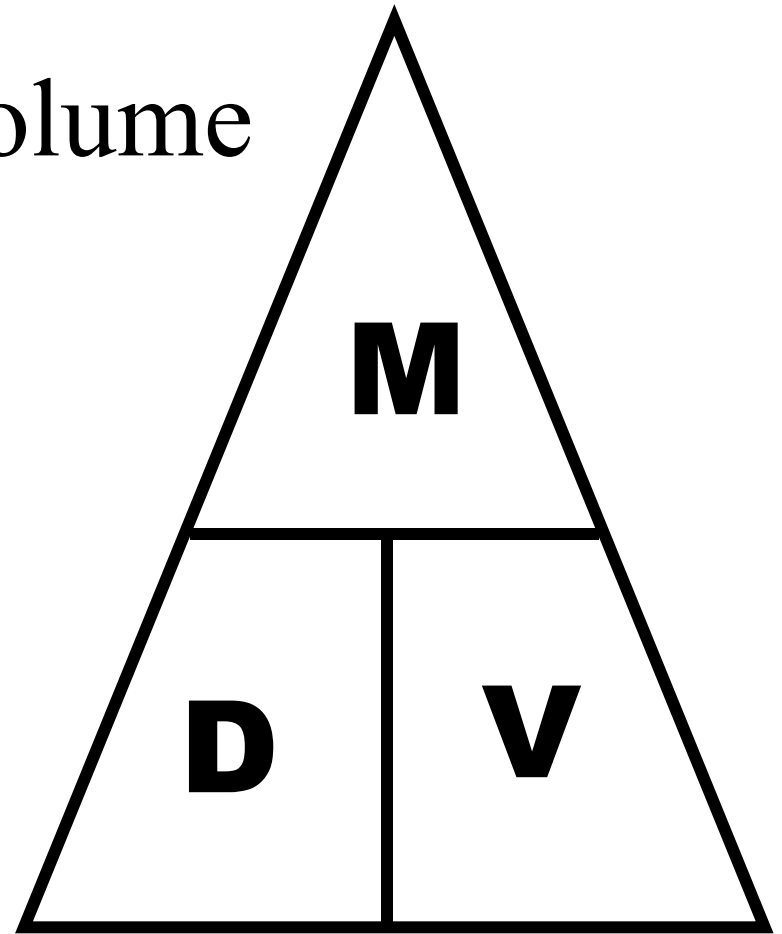
- **This is the smallest number that two or more numbers go into**
- **Example LCM of 12 and 20 is 60**

Mass Density Volume

$$\text{Mass} = \text{Density} \times \text{Volume}$$

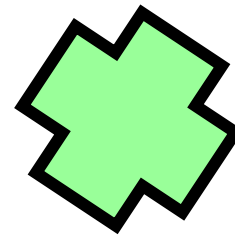
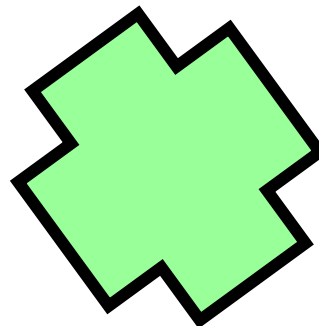
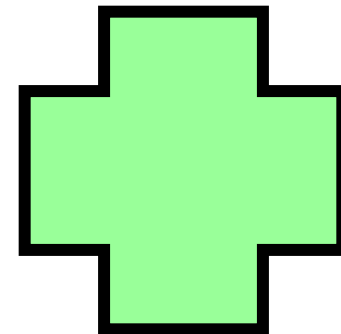
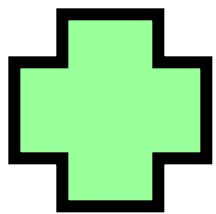
$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

$$\text{Volume} = \frac{\text{Mass}}{\text{Density}}$$



Similar Shapes

- **Shapes are exactly the same, but are different sizes.**



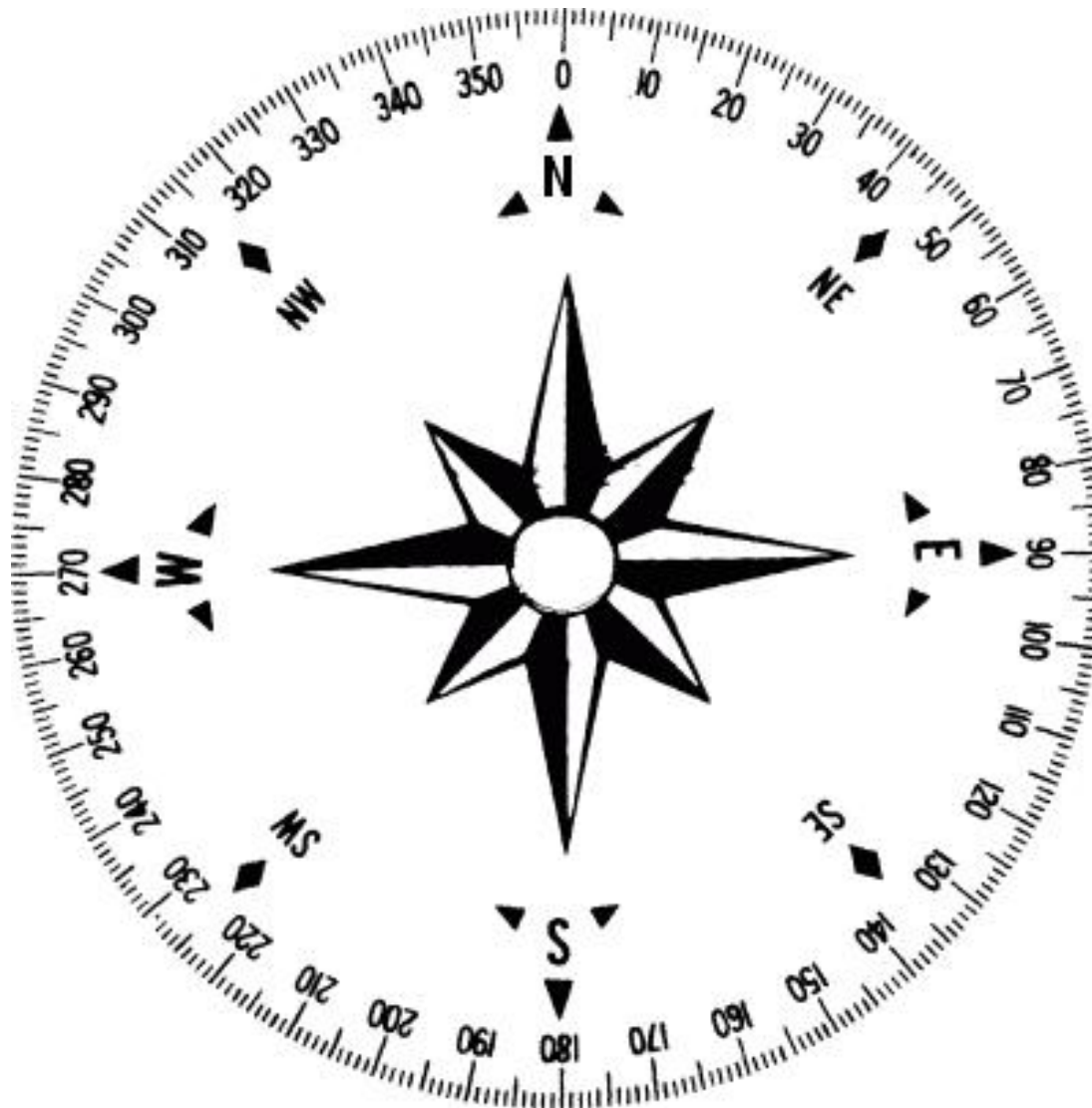
Inverse Proportion

- **As one variable increases, so the other variable decreases.**
- **As one variable decreases, so the other variable increases.**
- **If y is inversely proportional to x then**

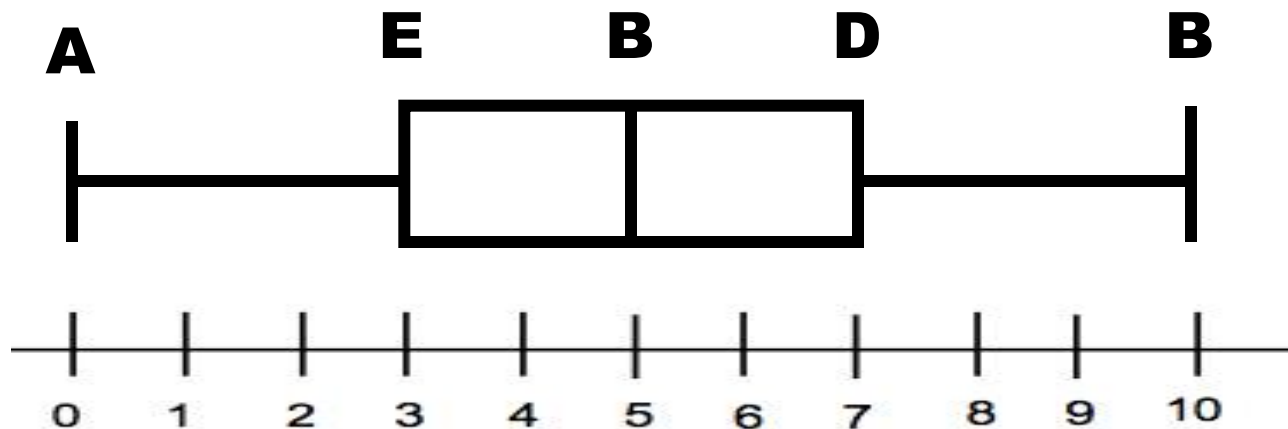
$$y \propto \frac{1}{x} \quad \text{or} \quad y = \frac{k}{x}$$

- **k = constant of proportionality**

Compass Directions



Box Plots



Minimum (A) = 0

Maximum (B) = 10

Median (C) = 5

Upper Quartile (D) = 7

Lower Quartile (E) = 3

Decimals to Percentages

- **Multiply the decimal number by 100**

$$0.25 \times 100 = 25\%$$

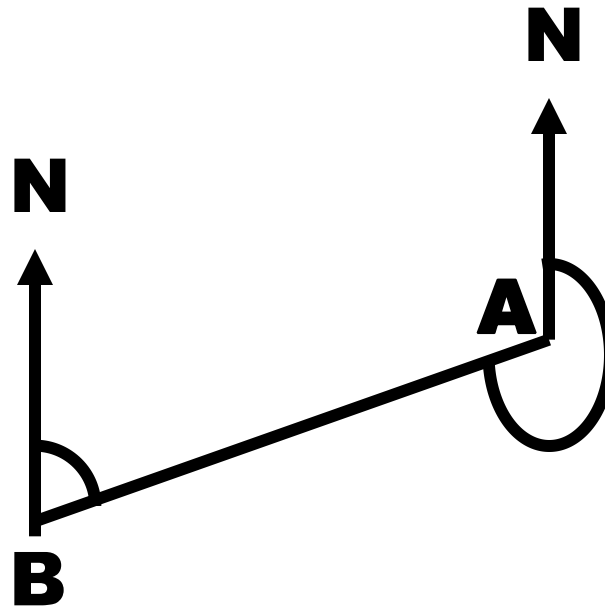
$$0.5 \times 100 = 50\%$$

$$0.07 \times 100 = 7\%$$

$$1.23 \times 100 = 123\%$$

Bearing

- **This is the angle, measured clockwise from the north. The bearing of B from A is 230° . The bearing of A from B is 050° . It always has to have 3 digits.**



Mutually Exclusive Events

- **Two events are mutually exclusive if they cannot occur at the same time (i.e., you cannot throw a 4 and a prime number on a single dice at the same time).**

$$P(A \text{ or } B) = P(A) + P(B)$$

Variance

- **Population variance** is where $\mu =$ mean and $N =$ number of items

$$\sigma^2 = \frac{\sum (X - \mu)^2}{N}$$

- **Sample variance** is where $M =$ mean of sample

$$s^2 = \frac{\sum (X - M)^2}{N - 1}$$

Systematic Sampling

- **This is where you take every n^{th} one in the list.**
- **Example : You have 300 names and you want 30 as your sample.**

$300 \div 30 = 10$. This means you take every 10^{th} one.

Solving Multiplication Equations

- **Take the number multiplying the letter to the other side of the equation and make it a divide**

Example :

$$2x = 6$$
$$x = 6 \div 2$$
$$x = 3$$