



**ARYABHATTA
MATHEMATICAL GARDEN**

**GOVT MODEL HIGH SCHOOL
SECTOR 25, CHANDIGARH**

ARYABHATTA

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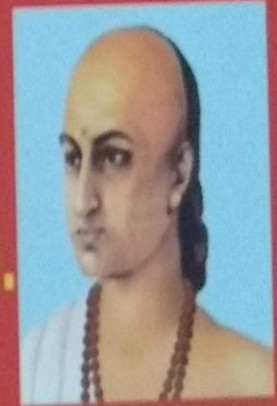


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ARYABHATTA (आर्यभट्ट)

476 BC-550 CE

Aryabhata was the first of the major mathematician from the classical age of Indian Mathematics. He was born 476 CE in the Gupta era in Kusumpura of Patliputra (present day Patna). His works include place value system and zero, approximation of π (pi) correct to 4 decimal places, diameter of earth, area of triangle etc.



GMHS 25 WELCOMES YOU TO MATHEMATICAL GARDEN



MAIN GATE

3 D CORDINATE SYSTEM



TYPES OF ANGLES



CIRCULAR GEOBOARD



CIRCULAR GEOBOARD

Circular Geoboard is a mathematical manipulative used to explore basic concepts in plane geometry (specifically for circles). It is used to understand the arc properties, chord properties and the properties associated with the angles in a circle.

CLINOMETER



GEOBOARD



MATHS ROBOT-A MODEL TO ENHANCE RECOGNITION OF VARIOUS 3D SHAPES



RELATIONSHIP BETWEEN VOLUMES OF CONE AND CYLINDER



ANGLE SUM PROPERTY OF TRIANGLES



VERIFICATION OF PYTHAGORAS THEOREM



CONVERSION OF 2D TO 3D SHAPES



COMBINATION OF CONE AND HEMISPHERE



SPHERE, ITS AREA AND VOLUME



TRIANGULAR PYRAMID, ITS AREA AND VOLUME



COMBINATION OF CONE AND CYLINDER



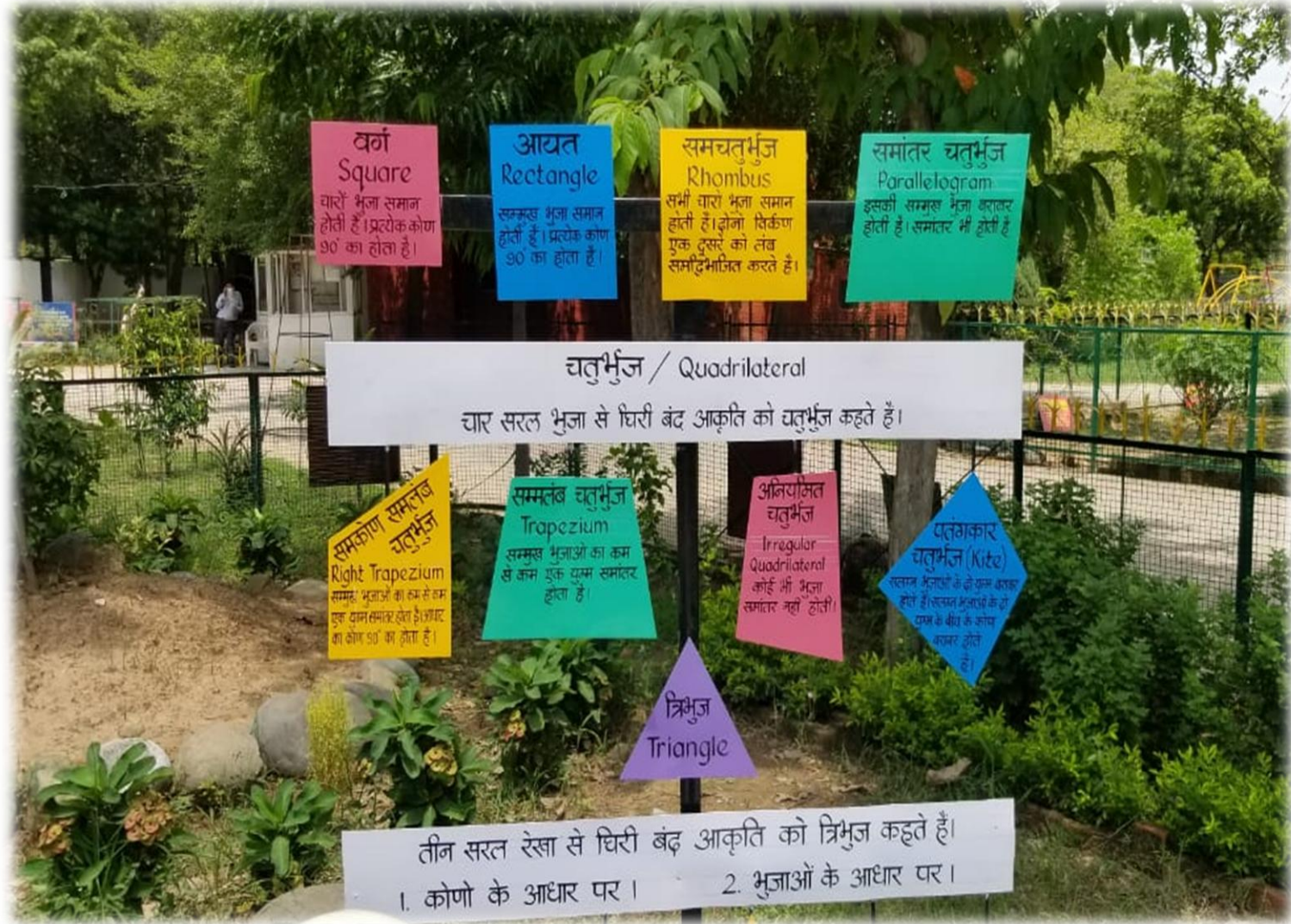
CUBE, ITS AREA AND VOLUME



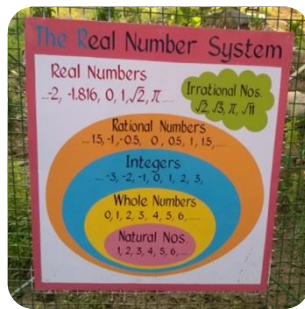
CYLINDER, ITS AREA AND VOLUME



FAMILY OF QUADRILATERALS AND TRIANGLES

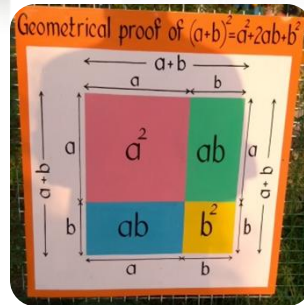
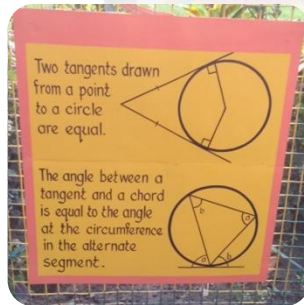
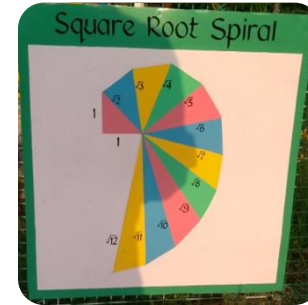


MATHS EVERYWHERE



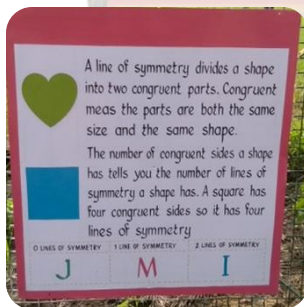
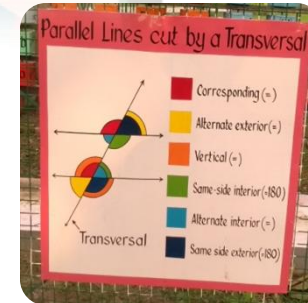
ROMAN NUMBERS

| | | | |
|----|------|-----|------|
| 1 | I | 20 | XX |
| 2 | II | 30 | XXX |
| 3 | III | 40 | XL |
| 4 | IV | 50 | L |
| 5 | V | 60 | LX |
| 6 | VI | 70 | LXX |
| 7 | VII | 80 | LXXX |
| 8 | VIII | 90 | XC |
| 9 | IX | 100 | C |
| 10 | X | 500 | D |



Classification of Numbers (1 to 50)

| | |
|------------------------------------|--|
| PRIME NUMBERS | 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 47 |
| COMPOSITE NUMBERS | 4, 6, 8, 9, 10, 12, 14, 15, 16, 18, 20, 21, 22, 24, 25, 26, 27, 28, 30, 32, 34, 35, 36, 38, 39, 40, 42, 44, 45, 46, 48, 49, 50 |
| NEITHER PRIME NOR COMPOSITE | 0 and 1 |



LAWS OF INDICES

| | |
|--|--|
| RULE | EXAMPLE |
| $a^m \times a^n = a^{m+n}$ | $2^5 \times 2^3 = 2^8$ |
| $a^m \div a^n = a^{m-n}$ | $5^7 \div 5^3 = 5^4$ |
| $(a^m)^n = a^{m \times n}$ | $(10^3)^2 = 10^6$ |
| $a^1 = a$ | $17^1 = 17$ |
| $a^0 = 1$ | $34^0 = 1$ |
| $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$ | $\left(\frac{5}{6}\right)^2 = \frac{25}{36}$ |
| $a^{-m} = \frac{1}{a^m}$ | $9^{-2} = \frac{1}{81}$ |
| $a^{\frac{x}{y}} = \sqrt[y]{a^x}$ | $49^{\frac{1}{2}} = \sqrt{49}$ |

Decimal Place Value Chart

| | | | | | | | |
|---------------|--------------|-------------|------------|-----------------------|------------------------|-------------------------|-------|
| 1,000 | 100 | 10 | 1 | 1 | 0.1 | 0.01 | 0.001 |
| $\times 1000$ | $\times 100$ | $\times 10$ | $\times 1$ | $\times \frac{1}{10}$ | $\times \frac{1}{100}$ | $\times \frac{1}{1000}$ | |
| Thousands | Hundreds | Tens | Ones | Tenths | Hundredths | Thousandths | |

- ### Divisibility Rules!
- A NUMBER IS DIVISIBLE BY...
- 2 if the last digit is even or zero
 - 3 if the sum of the digits is divisible by three
 - 4 if the last two digits are divisible by four
 - 5 if the last digit is zero or five
 - 6 if the number is divisible by both two & three
 - 8 if the last three digits are divisible by eight
 - 9 if the sum of the digits is divisible by nine
 - 10 if the last digit is zero

DIVISIBILITY RULES

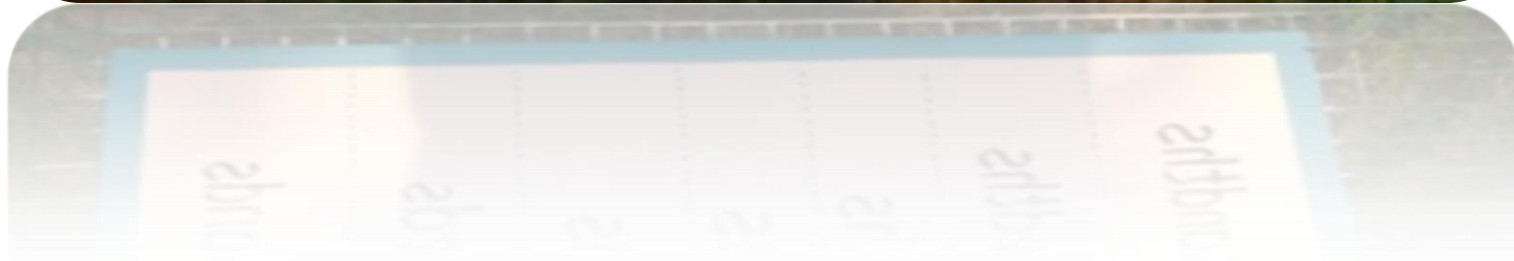
Divisibility Rules!

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- ✓ 10 if the last digit is zero

DECIMAL PLACE VALUE CHART

| Decimal Place Value Chart | | | | | | |
|---------------------------|--------------|-------------|------------|-----------------------|------------------------|-------------------------|
| 1,000 | 100 | 10 | 1 | .1 | .01 | .001 |
| $\times 1000$ | $\times 100$ | $\times 10$ | $\times 1$ | $\times \frac{1}{10}$ | $\times \frac{1}{100}$ | $\times \frac{1}{1000}$ |
| Thousands | Hundreds | Tens | Ones | Tenths | Hundredths | Thousandths |



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| $(a^m)^n = a^{m \times n}$ | $(10^3)^7 = 10^{21}$ |
| $a^1 = a$ | $17^1 = 17$ |
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| $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$ | $\left(\frac{5}{6}\right)^2 = \frac{25}{36}$ |
| $a^{-m} = \frac{1}{a^m}$ | $9^{-2} = \frac{1}{81}$ |
| $a^{\frac{x}{y}} = \sqrt[y]{a^x}$ | $49^{\frac{1}{2}} = \sqrt{49}$ |

| | |
|-----------------------------------|--------------------------------------|
| $a^{\frac{x}{y}} = \sqrt[y]{a^x}$ | $\sqrt[4]{64} = \sqrt[2]{\sqrt{64}}$ |
| $a^{-m} = \frac{1}{a^m}$ | $8^{-1} = \frac{1}{8}$ |

LINE OF SYMMETRY



A line of symmetry divides a shape into two congruent parts. Congruent means the parts are both the same size and the same shape.



The number of congruent sides a shape has tells you the number of lines of symmetry a shape has. A square has four congruent sides so it has four lines of symmetry.

0 LINES OF SYMMETRY

J

1 LINE OF SYMMETRY

M

2 LINES OF SYMMETRY

I

J

W

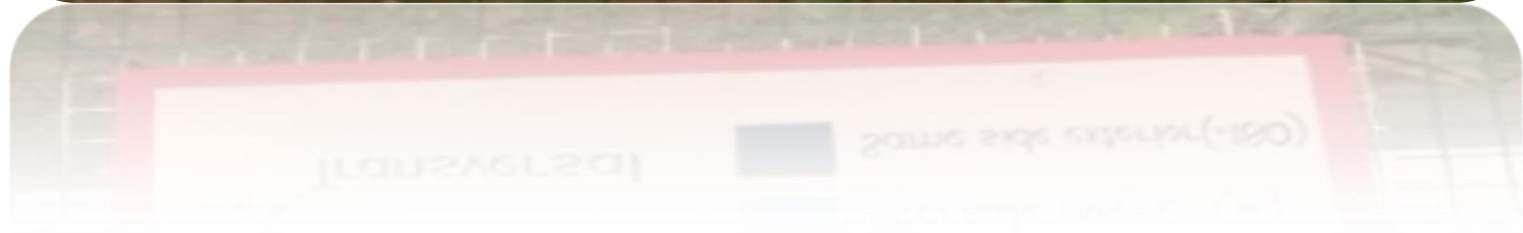
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0 LINES OF SYMMETRY

1 LINE OF SYMMETRY

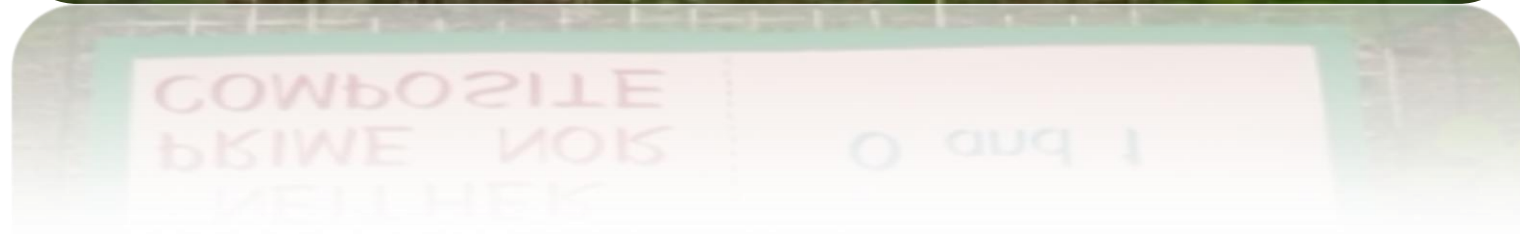
2 LINES OF SYMMETRY

PARALLEL LINES CUT BY A TRANSVERSAL



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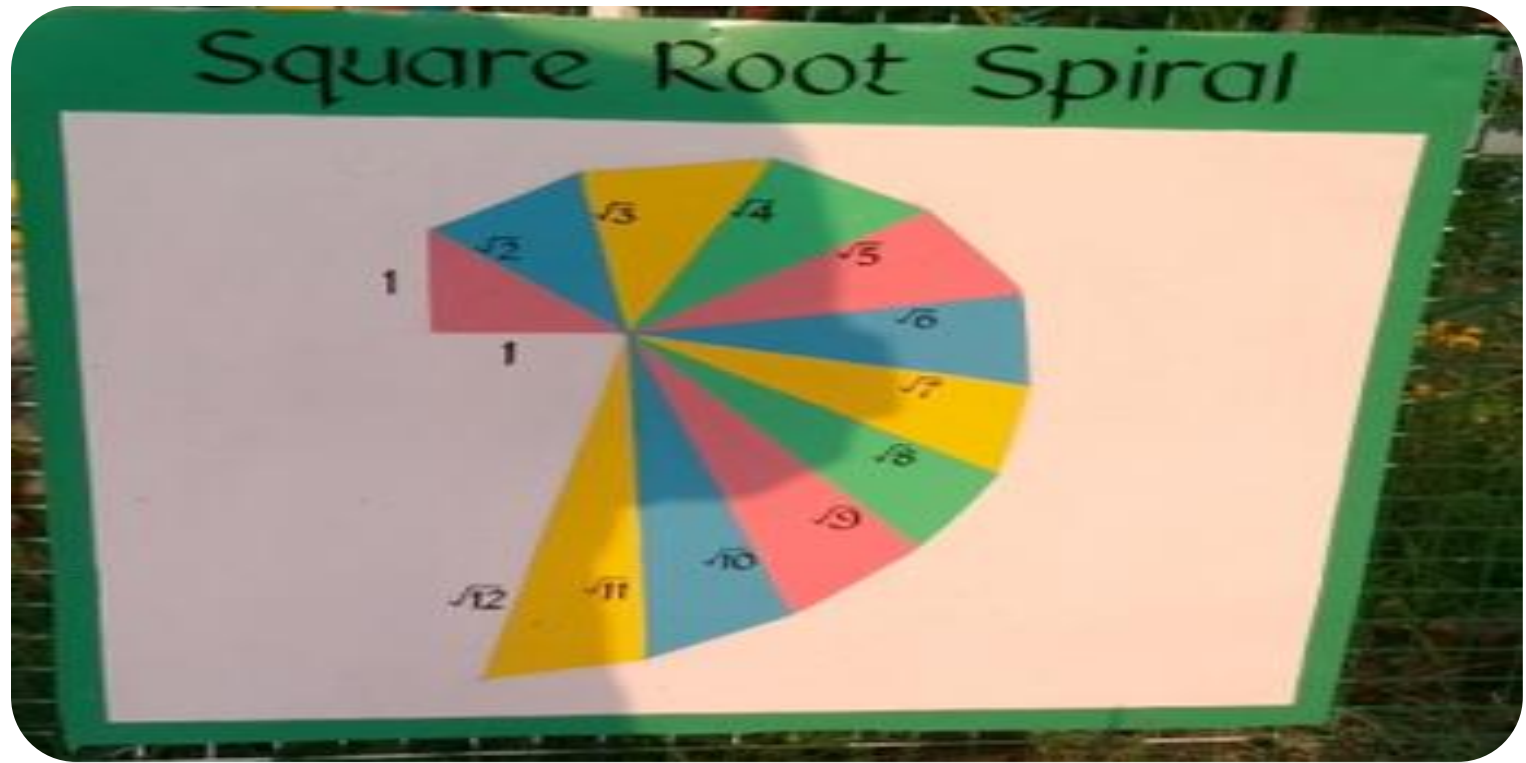


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| 7 | VII | 80 | LXXX |
| 8 | VIII | 90 | XC |
| 9 | IX | 100 | C |
| 10 | X | 500 | D |

| | | | |
|----|------|-----|----|
| 10 | X | 200 | D |
| 9 | IX | 100 | C |
| 8 | VIII | 80 | XC |

SQUARE ROOT SPIRAL



CIRCLE THEOREM

Two tangents drawn from a point to a circle are equal.



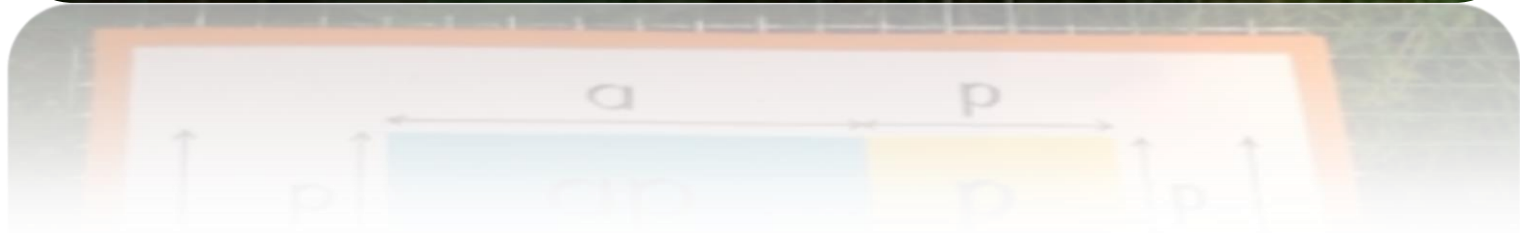
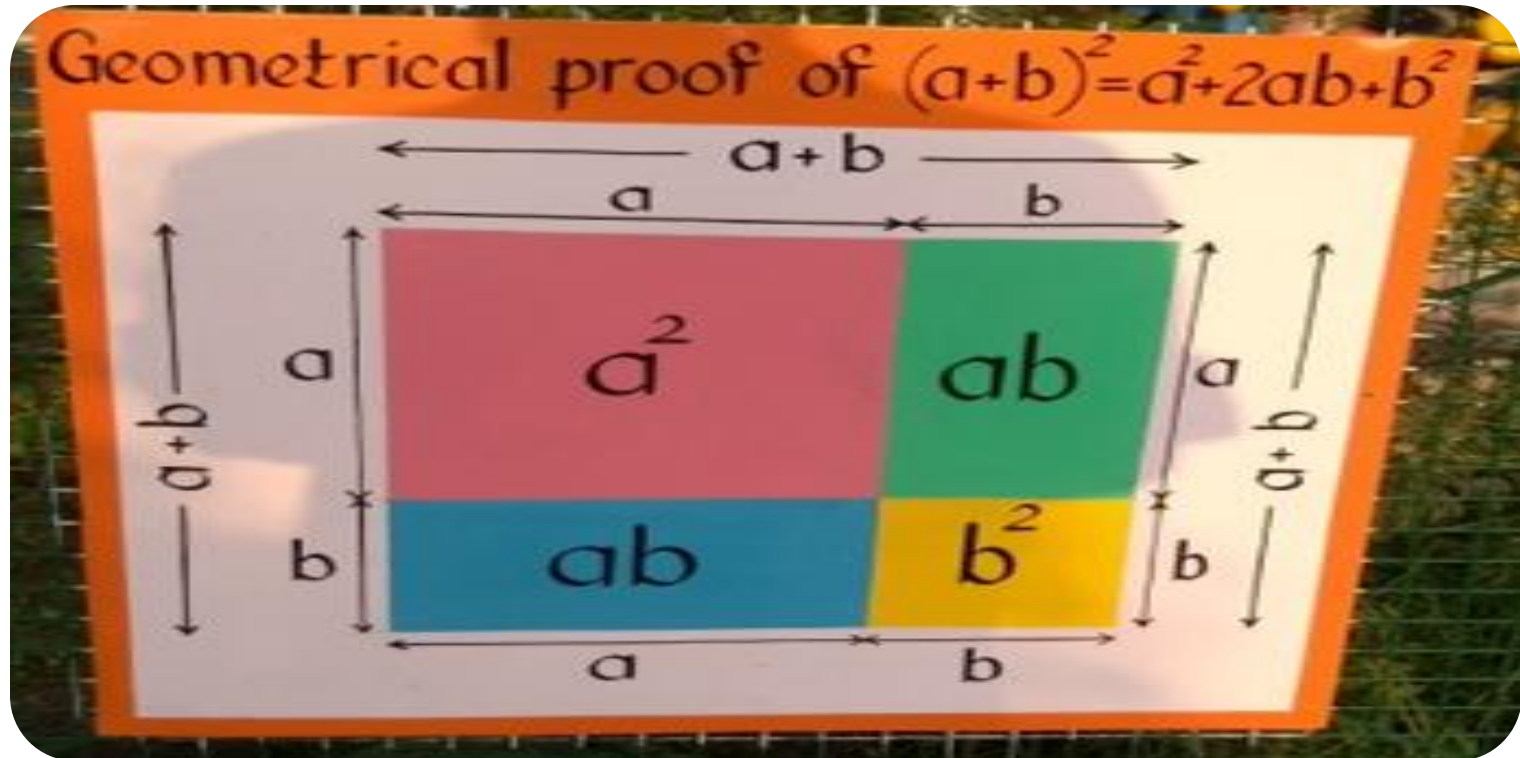
The angle between a tangent and a chord is equal to the angle at the circumference in the alternate segment.



segment -
in the alternate
of the circumference



GEOMETRICAL PROOF OF IDENTITY



THANKS FOR THE VISIT



**FOR VISIT TO MATHS PARK
CONTACT NO.: 0172-2700139**