

Euclid Geometry

Euclid Geometry

- Euclid a Greek mathematician is called the Father of Geometry
- Euclid defined around 23 items. 7 of them are mentioned below

- 1) A point is that which has no part
- 2) A line is breath less and has length only
- 3) The end of a line is points
- 4) A straight line is a line which lies evenly with the points on itself
- 5) A surface is that which has length and breath only
- 6) The edges of a surface are lines

The definitions of line, point, plane explained by Euclid is not accepted by the Mathematician. So these terms are taken as undefined

Axioms or Postulates

Axioms or Postulates are assumptions which are obvious universal truths. They are not proved

Theorems

They are statements which are proved using axioms/postulates, definition, previously proved statement and deductive reasoning

Euclid axioms

1) Things which are equal to same things are equal to one another

If $x=z$, $y=z$ then $x=y$

2) If equals are added to equals, the wholes are equal

$x=y \Rightarrow x+z=y+z$

3) If equals are subtracted from equals, the remainders are equal

$x=y \Rightarrow x-z=y-z$

4) Things which coincide with one another are equal to one another

5) The whole is greater than the part

6) Things which are double of the same things are equal to one another

7) Things which are halves of the same things are equal to one another

8) If first thing is greater than second and second is greater than third, then first is greater than third

Euclid Postulates

1) A straight line may be drawn from one point to another point

2) A terminated line can be produced indefinitely

3) A circle can be drawn with any center and any radius

4) All right angles are equal to one another

5) If a straight line falling on two straight lines makes the interior angles on the same side of it taken together less than two right angles, then the straight lines if produced indefinitely meet on that side on which the angles are less than the two right angles

Play fair Axiom

For every line l and for every point P not lying on the line l , there exists a unique line m passing through P and Parallel to l

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