

**ELEMENTS OF  
GEOMETRY, BASED  
ON EUCLID. BOOK I**

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Elements of geometry, based on Euclid. Book I by Edward Atkins

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**EDWARD ATKINS**

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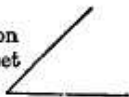


# GEOMETRY.

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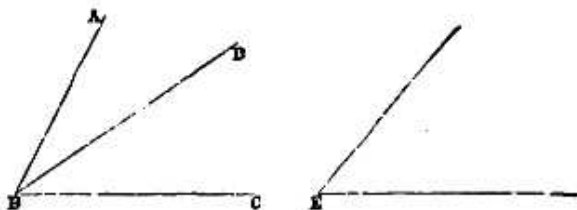
### Definitions.

1. A point is that which has position, but not magnitude.
2. A line is length without breadth.
3. The extremities of a line are points.
4. A straight line is that which lies evenly between its extreme points.
5. A superficies (or surface) is that which has only length and breadth.
6. The extremities of a superficies are lines.
7. A plane superficies is that in which any two points being taken, the straight line between them lies wholly in that superficies.
8. A plane angle is the inclination of two lines to one another in a plane, which meet together, but are not in the same direction.
9. A plane rectilineal angle is the inclination of two straight lines to one another, which meet together, but are not in the same straight line.



NOTE.—When several angles are at one point B, any one of them is expressed by three letters, of which the middle letter is B, and the first letter is on one of the straight lines which contain the angle, and the last letter on the other line.

Thus, the angle contained by the straight lines  $AB$  and  $BC$  is pressed either by  $ABC$  or  $CBA$ , and the angle contained by  $AB$



$BD$  is expressed either by  $ABD$  or  $DBA$ . When there is only one angle at any given point, it may be expressed by the letter at that point, as the angle  $E$ .



10. When a straight line standing on another straight line makes the adjacent angles equal to one another, each of the angles is called a **right angle**; and the straight line which stands on the other is called a **perpendicular** to it.



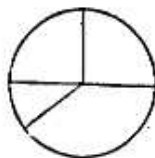
11. An **obtuse angle** is that which is greater than a right angle.



12. An **acute angle** is that which is less than a right angle.

13. A **term** or **boundary** is the extremity of anything.

14. A **figure** is that which is enclosed by one or more boundaries.



15. A **circle** is a plane figure contained by one line, which is called the **circumference**, and is such, that all straight lines drawn from a certain point within the figure to the circumference are equal to one another.

16. And this point is called the **centre** of the circle, [and any straight line drawn from the centre to the circumference is called a **radius** of the circle].

17. A **diameter** of a circle is a straight line drawn through the centre, and terminated both ways by the circumference.

18. A **semicircle** is the figure contained by a diameter and the part of the circumference cut off by the diameter.

19. A **segment** of a circle is the figure contained by a straight line and the part of the circumference which it cuts off.

20. **Rectilineal figures** are those which are contained by straight lines.

21. **Trilateral figures, or triangles,** by three straight lines.

22. **Quadrilateral figures,** by four straight lines.

23. **Multilateral figures, or polygons,** by more than four straight lines.

24. Of three-sided figures an **equilateral triangle** is that which has three equal sides.



25. An **isosceles triangle** is that which has only two sides equal.



26. A **scalene triangle** is that which has three unequal sides.



27. A **right-angled triangle** is that which has a right angle.



28. An **obtuse-angled triangle** is that which has an obtuse angle.



29. An **acute-angled triangle** is that which has three acute angles.

