

Euclidean Geometry

Line and Angle Relationships

Undefined Geometric Terms

A point, line, ray

Examples

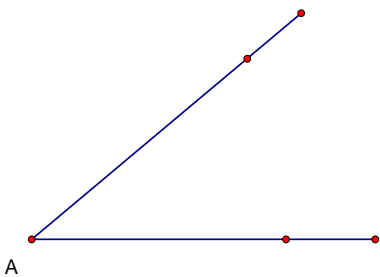


Defined Terms

Collinear: Three or more points that lie on the same line.



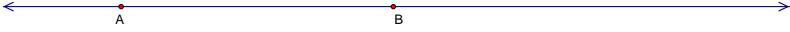

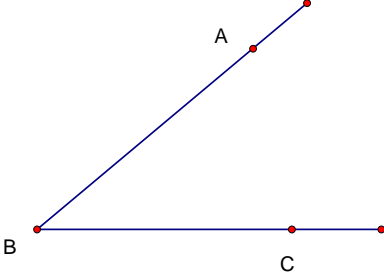
Non-Collinear; Three or more points that do not lie on the same line

Angle: The union of two rays that meet at a common endpoint called the **vertex**.



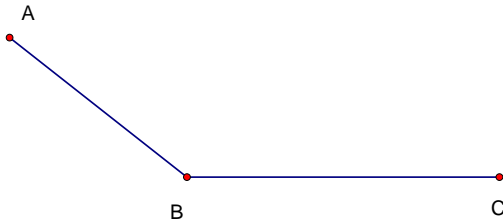
An angle with vertex A

Representations of rays, lines, and segments

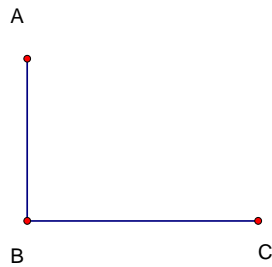
Object	Drawing	Representation
Point		A
Line Segment		\overline{AB}
Line		\overleftrightarrow{AB}
Ray		\overrightarrow{AB}
Angle		$\angle ABC$

Types Angles

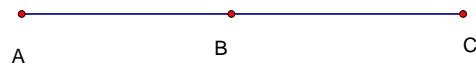
Obtuse Angle: Angle whose measure is greater than 90 degrees



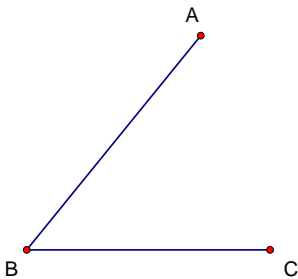
Right Angle: An angle whose measure is 90 degrees.



Straight Angle: An angle whose measure is 180 degrees.



Acute Angle: An angle whose measure is less than 90 degrees.



Parallel Lines are lines that do not intersect and lie in the same plane.

Euclid Postulates

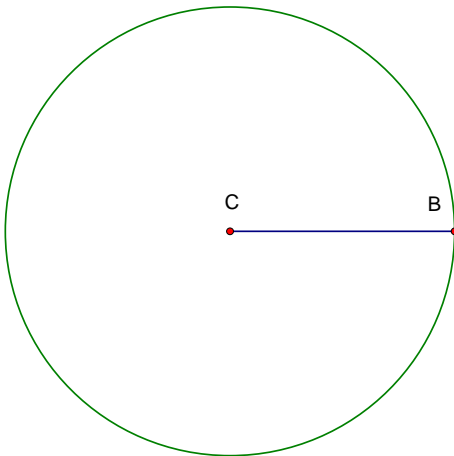
1. A straight line segment can be drawn joining any two points.



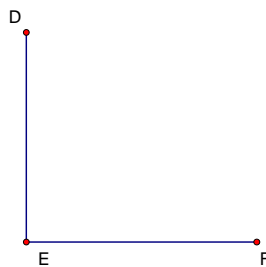
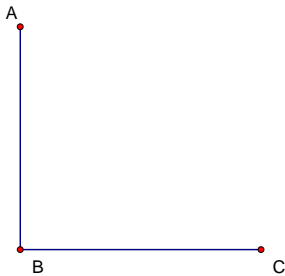
2. Any straight line segment can be extended indefinitely in a straight line.



3. A circle can be described with any center and any radius.



4. All right angles are congruent.

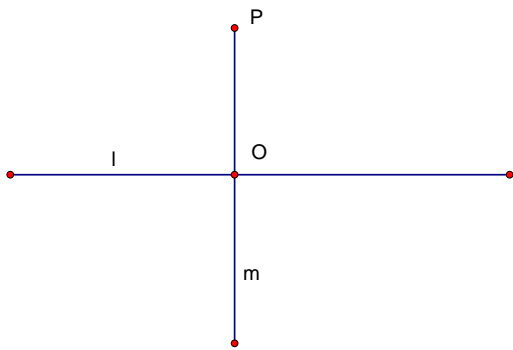


5. Given a line and a point not on that line, there is one and only one line through the point that is parallel to given line



Definition: **Perpendicular lines** meet to form a right angle.

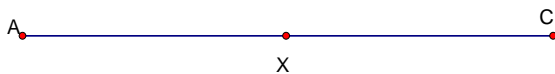
Theorem: From a point not on a given line, there is exactly one line perpendicular to the given line.



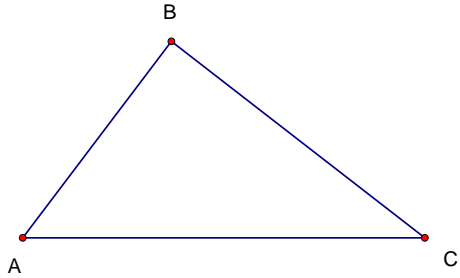
Example : line m through P perpendicular to l

Examples

1) Draw A-X-B (Segment AB with X lying between A and B)

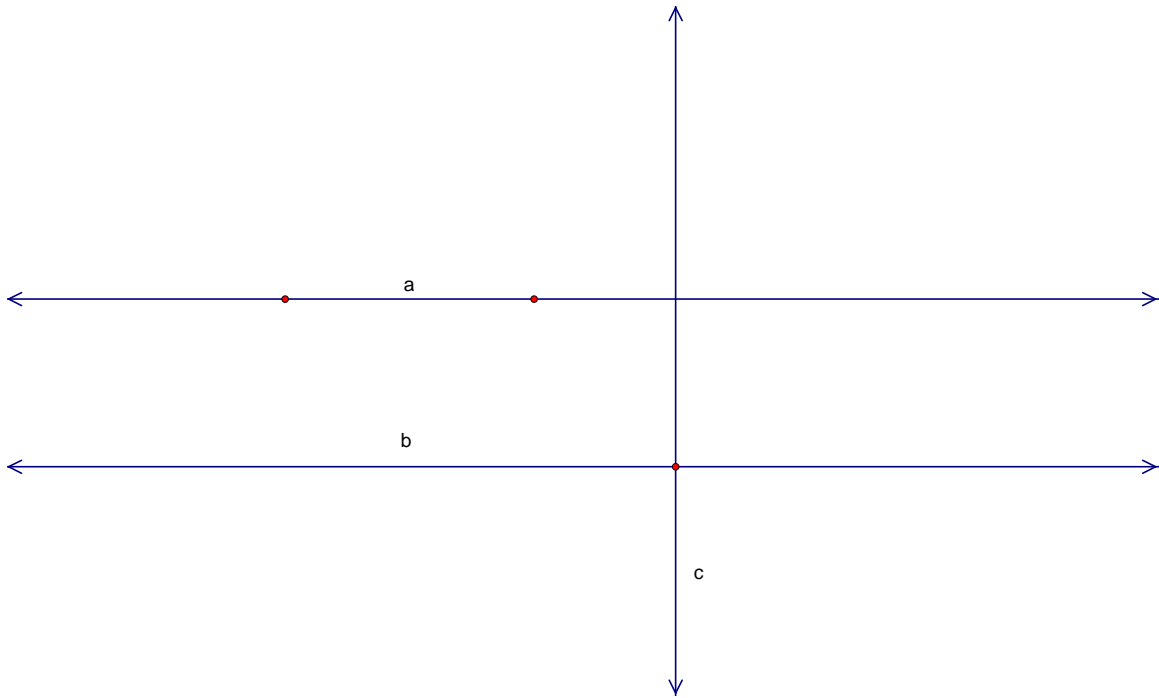


2) List the all ways to name $\triangle ABC$

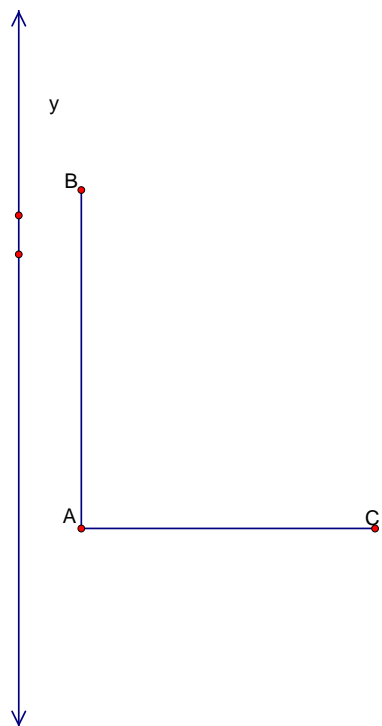


$\triangle ABC$, $\triangle BAC$, $\triangle CBA$, $\triangle ACB$, $\triangle BCA$, and $\triangle CAB$

3) Draw line a and line b, where c is perpendicular to both a and b.



4) Draw $\overline{AB} \perp \overline{AC}$ and $y \parallel \overline{AB}$



5) Right angle $\angle ABC$ with $\overline{AE} \perp \overline{BC}$



