Defined and Undefined Terms

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What are the Components of a Mathematical System?

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2. Defined Terms

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3. Axioms or Postulates

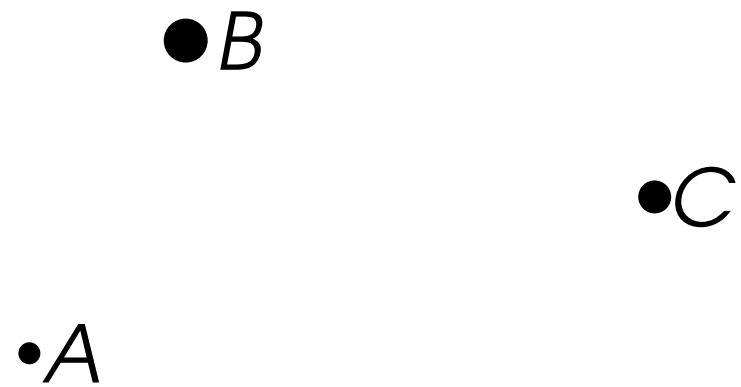
What are the Components of a Mathematical System?

1. Undefined Terms
2. Defined Terms
3. Axioms or Postulates
4. Theorems

What are Undefined Terms?

Undefined terms are terms that can be described but cannot be defined.

What are the Undefined Terms in Geometry?



1. Point

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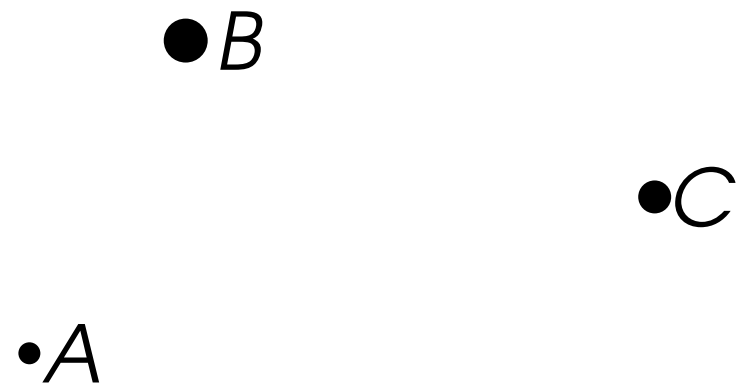

1. Point
   - indicates a location (or position) in space

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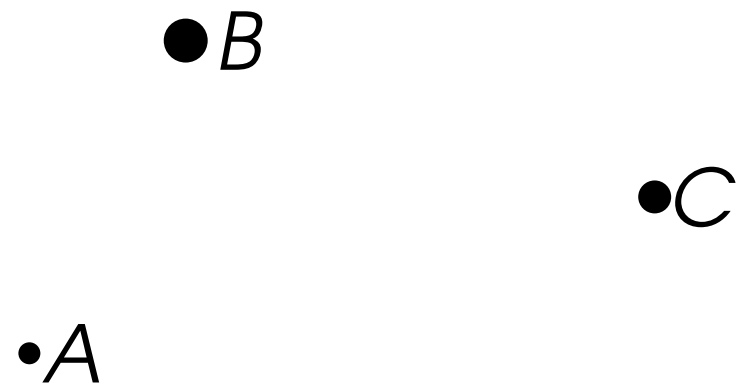

1. Point
   - indicates a location (or position) in space
   - has no dimension (actual size)

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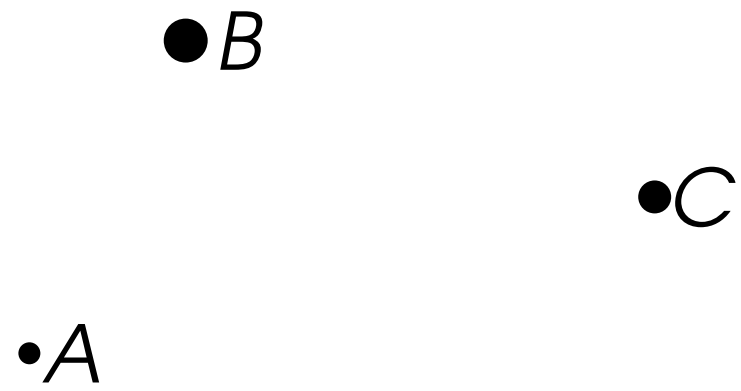

1. Point
   - indicates a location (or position) in space
   - has no dimension (actual size)
   - has no length, no width (thickness), and no height

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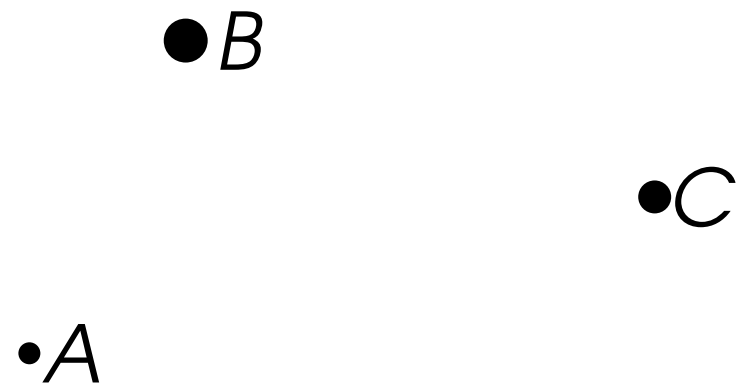

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   - has no dimension (actual size)
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   - usually named with a capital letter

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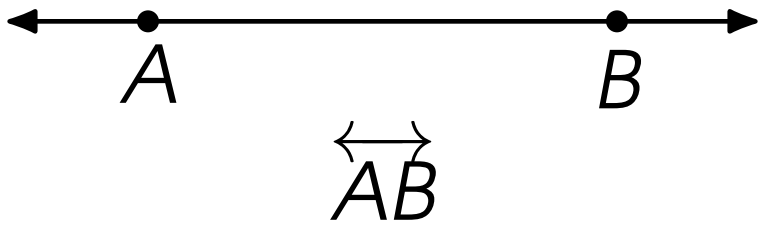

2. Line

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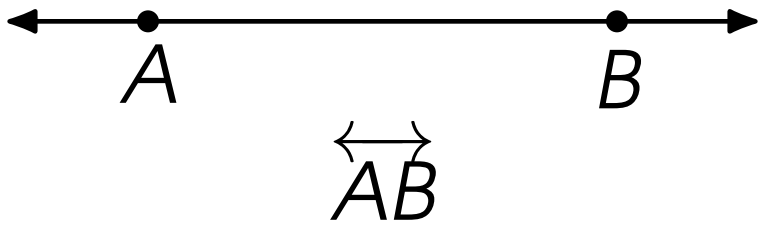

2. Line
   - a collection of points along a straight path that extends endlessly in both directions

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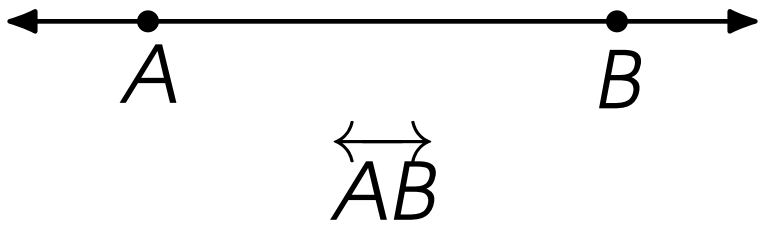

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   - a collection of points along a straight path that extends endlessly in both directions
   - length extends in one dimension

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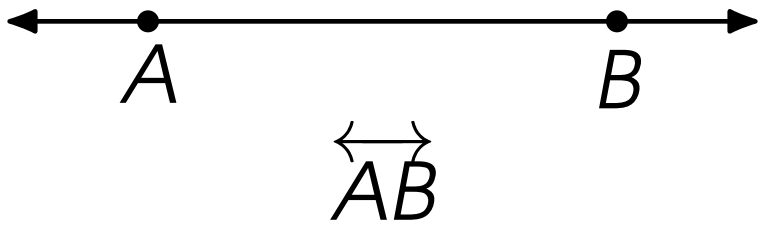

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   - length extends in one dimension
   - has infinite length, zero width (no thickness), and zero height

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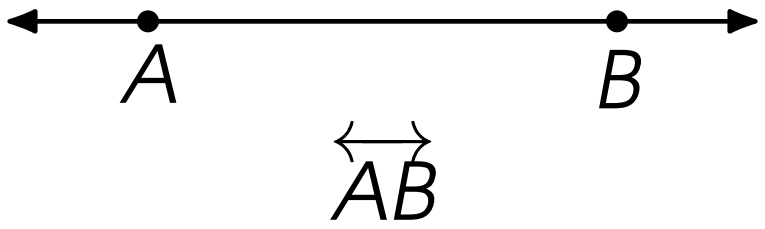

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   - a collection of points along a straight path that extends endlessly in both directions
   - length extends in one dimension
   - has infinite length, zero width (no thickness), and zero height
   - is assumed to be straight

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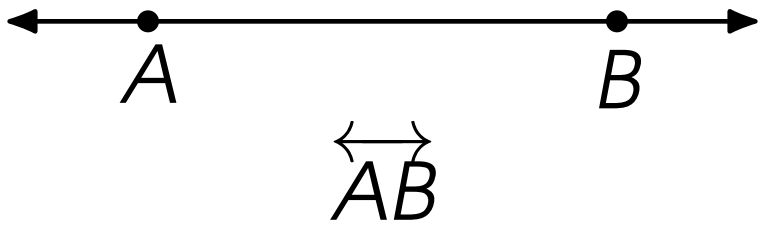

2. Line
   - a collection of points along a straight path that extends endlessly in both directions
   - length extends in one dimension
   - has infinite length, zero width (no thickness), and zero height
   - is assumed to be straight
   - is drawn with arrowheads on both ends

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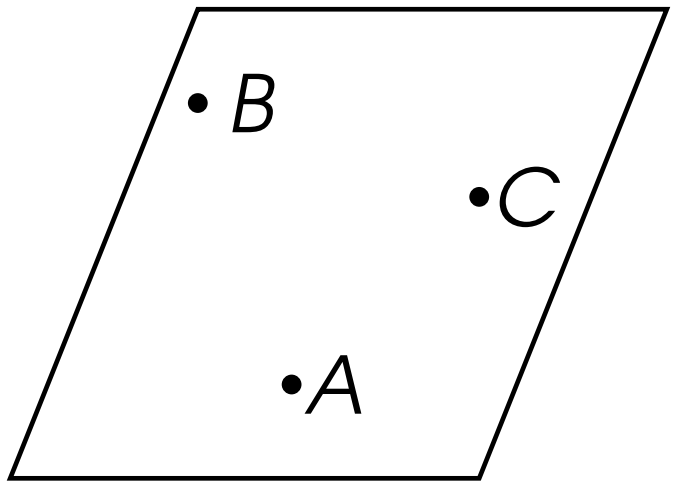

3. Plane

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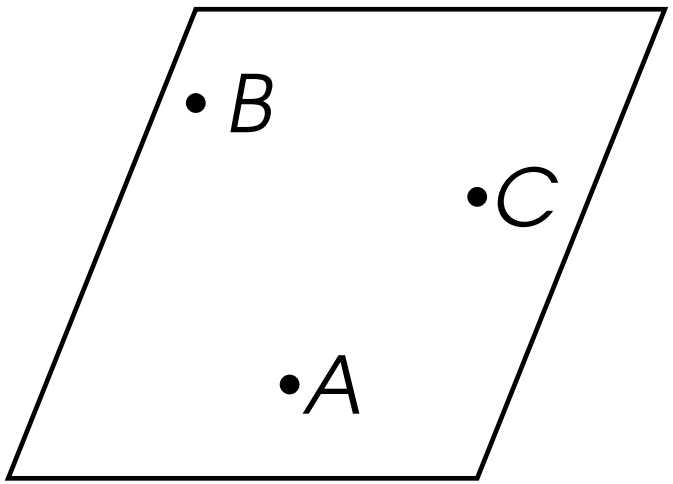

3. Plane
   - extends infinitely in two dimensions. It is named by three points that do not lie on the same line.

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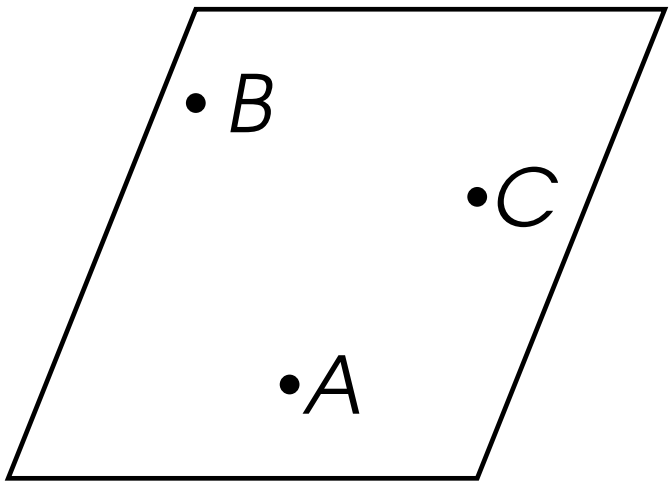

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   - has infinite length, infinite width and zero height (thickness)

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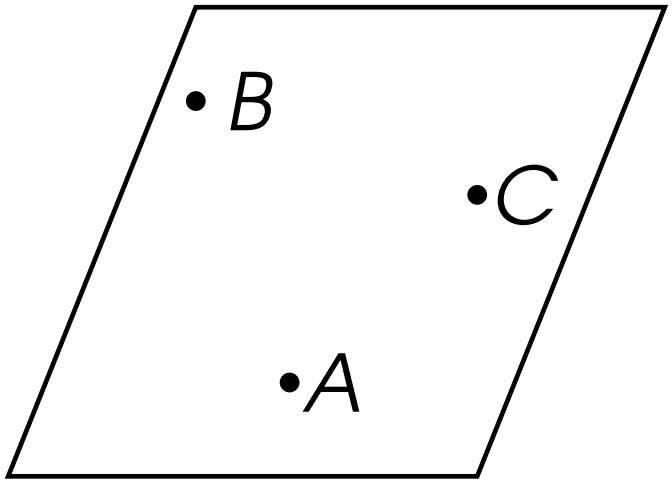

3. Plane
   - extends infinitely in two dimensions. It is named by three points that do not lie on the same line.
   - has infinite length, infinite width and zero height (thickness)
   - forms a flat surface extending indefinitely in all directions

What are Defined Terms?

Defined terms are terms with an exact definition or a specific description. They include a specific category and critical attributes.

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4. Coplanar points: set of points that lie on the same plane

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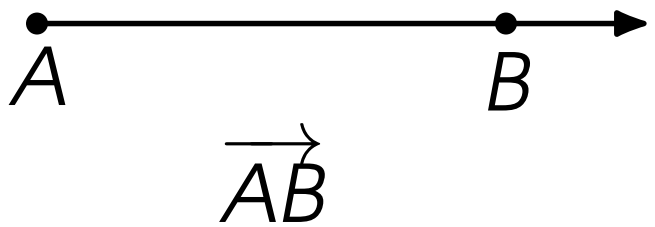
2. Collinear points: set of points that lie on the same line
3. Noncollinear points: set of points that do not lie on the same line
4. Coplanar points: set of points that lie on the same plane
5. Noncoplanar points: set of points that do not lie on the same plane

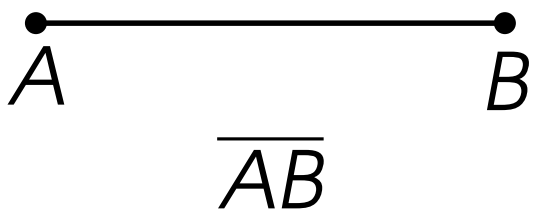
What are Some Defined Terms in Geometry?

6. Ray: a part of a line beginning at an endpoint and infinitely extends in one direction. To name a ray, we usually start from an endpoint.



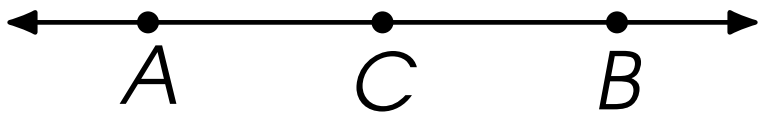
What are Some Defined Terms in Geometry?

7. Line Segment: part of a line consisting of two points, called endpoints, and the set of all points between the two endpoints



What are Some Defined Terms in Geometry?

8. Opposite Rays: two rays that share the same endpoint but extend towards opposite directions



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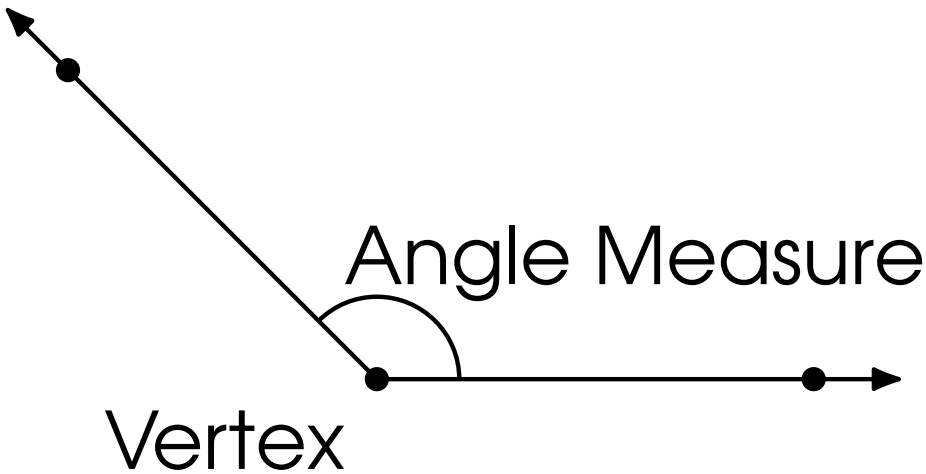
9. Angle: union of two noncollinear rays that share the same endpoint called the vertex. The two rays are referred to as the sides of the angle and the opening between the two rays determines the angle measure.



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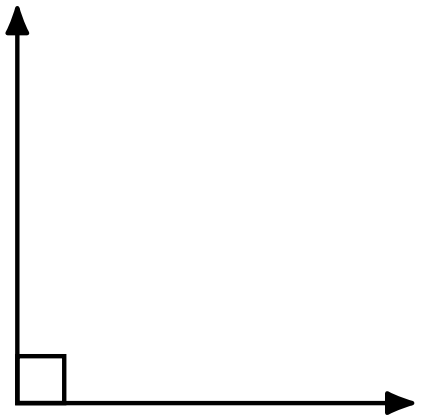
10. Right angle: an angle whose measure is exactly 90°



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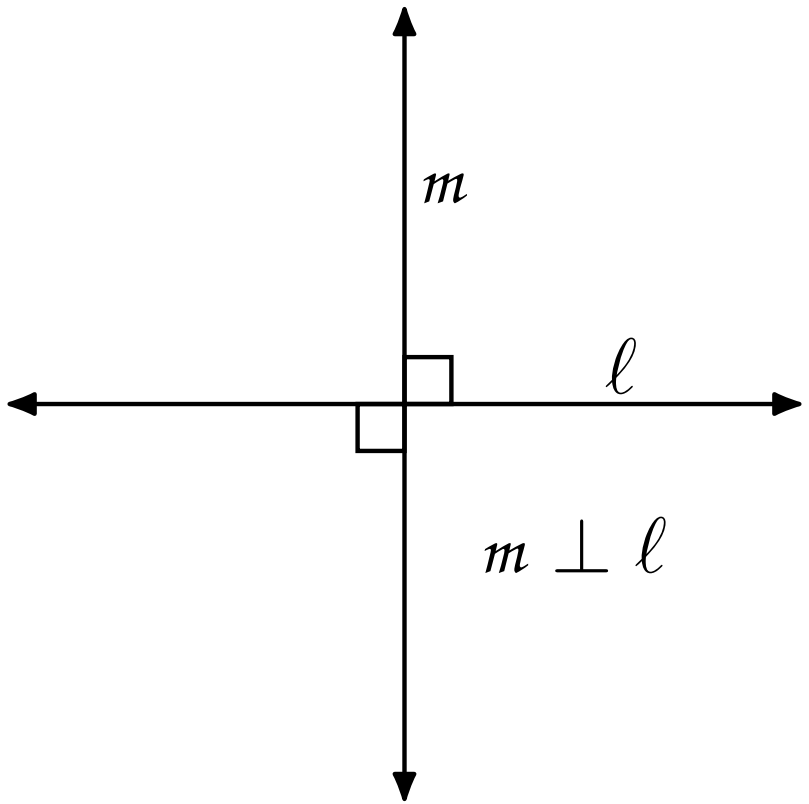
11. Perpendicular lines: two lines that intersect which form right angles



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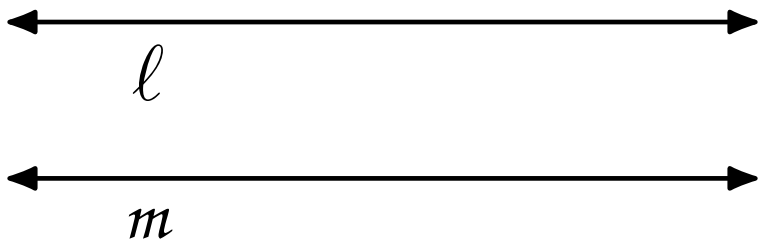
12. Parallel lines: two lines that lie in the same plane and do not intersect



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Thank you for watching.