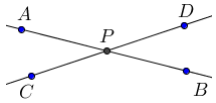
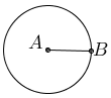
- **POSTULATE 1**: Things equal to the same or equal things are equal to each other; if $a = b$ and $c = b$, then $a = c$. (**Transitive Postulate**) Thus the total value of a dime is equal to the value of two nickels because each is equal to the value of ten pennies.
- **POSTULATE 2**: A quantity may be substituted for its equal in any expression or equation. (**Substitution Postulate**)
  Thus if $x = 5$ and $y = x + 3$, we may substitute 5 for x and find $y = 5 + 3 = 8$.
- **POSTULATE 3**: The whole equals the sum of its parts. (**Partition Postulate**) Thus the total value of a dime, a nickel, and a penny is 16 cents.
- **POSTULATE 4**: Any quantity equals itself. (**Reflexive Postulate** or **Identity Postulate**) Thus $x = x$, $m(\angle A) = m(\angle A)$, and $\overline{AB} = \overline{AB}$.
- **POSTULATE 5**: If equals are added to equals, the sums are equal; if $a = b$ and $c = d$, then $a + c = b + d$. (**Addition Postulate**)
- **POSTULATE 6**: If equals are subtracted from equals, the differences are equal; if $a = b$ and $c = d$, then $ac = bd$. (**Subtraction Postulate**)
- **POSTULATE 7**: If equals are multiplied by equals, the products are equal; if $a = b$ and $c = d$, then $ac = bd$. (**Multiplication Postulate**) Thus if the price of one book is \$2, the price of three books is \$6.
- **POSTULATE 8**: If equals are divided by equals, the quotients are equal; if $a = b$ and $c = d$, then $a/c = b/d$, where $c, d \neq 0$, (**Division Postulate**)
  Thus if the price of 1 lb of butter is 80 cents then, at the same rate, the price of $\frac{1}{4}$ lb is 20 cents.
- **POSTULATE 9**: Like powers of equals are equal; if $a = b$, then $a^n = b^n$. (**Powers Postulate**) Thus if $x = 5$, then $x^2 = 5^2$ or $x^2 = 25$.
- **POSTULATE 10**: Like roots of equals are equal; if $a = b$ then $\sqrt[n]{a} = \sqrt[n]{b}$ Thus if $y^3 = 27$, then $y = \sqrt[3]{27} = 3$
- **POSTULATE 11**: One and only one straight line can be drawn through any two points. Thus, $\overline{AB}$ is the only line that can be drawn between A and B in the figure on the left below:



- **POSTULATE 12**: Two lines can intersect in one and only one point. Thus, only P is the point of intersection of and in figure to the right above.
- **POSTULATE 13**: The length of a segment is the shortest distance between two points. Thus, is shorter than the curved or broken line segment between A and B in the figure on the left below.



- **POSTULATE 14**: One and only one circle can be drawn with any given point as center and a given line segment as a radius.
  Thus, only circle A in the figure at right above can be drawn with A as center and $\overline{AB}$ 2as a radius.
- **POSTULATE 15**: Any geometric figure can be moved without change in size or shape.
- **POSTULATE 16**: A segment has one and only one midpoint.
- **POSTULATE 17**: An angle has one and only one bisector.
- **POSTULATE 18**: Through any point on a line, one and only one perpendicular can be drawn to the line.
- **POSTULATE 19**: Through any point outside a line, one and only one perpendicular can be drawn to the given line.