Theorems and Postulates

Postulate 1-A Protractor Postulate

Given $\overrightarrow{AB}$ and a number r between 0 and 180, there is exactly one ray with endpoint A, extending on either side of $\overrightarrow{AB}$, such that the measure of the angle formed is r.

Definition of Right, Acute and Obtuse Angles

$\angle A$ is a right angle if $m\angle A$ is 90.
$\angle A$ is an acute angle if $m\angle A$ is less than 90.
$\angle A$ is an obtuse angle if $m\angle A$ is greater than 90 and less than 180.

Postulate 1-B Angle Addition

If R is in the interior of $\angle PQS$, then $m\angle PQR + m\angle RQS = m\angle PQS$.
If $m\angle PQR + m\angle RQS = m\angle PQS$, then R is in the interior of $\angle PQS$.

Vertical angles are congruent.

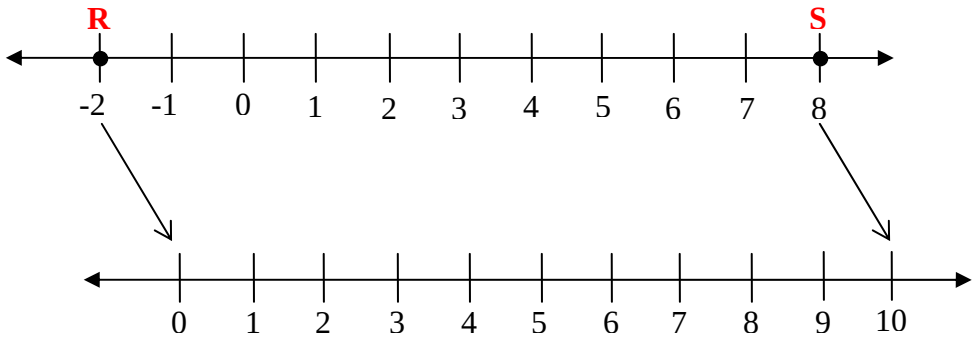
The sum of the measures of the angles in a linear pair is 180°.

The sum of the measures of complementary angles is 90°.

Postulate 2-A Ruler

Two points on a line can be paired with real numbers so that, given any two points R and S on the line, R corresponds to zero, and S corresponds to a positive number.

Point R could be paired with 0, and S could be paired with 10.



Postulate 2-B Segment Addition

If N is between M and P, then MN + NP = MP.
Conversely, if MN + NP = MP, then N is between M and P.

Theorem 2-A Pythagorean Theorem

In a right triangle, the sum of the squares of the measures of the legs equals the square of the measure of the hypotenuse.

Distance Formula

The distance d between any two points with coordinates (x_1, y_1) and (x_2, y_2) is given by the formula $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ **.**

Midpoint Definition

The midpoint, M, of $\overline{AB}$ is the point between A and B such that AM = MB.

Midpoint Formula Number Line

With endpoints of A and B on a number line, the midpoint of $\overline{AB}$ is $\frac{A+B}{2}$**.**

Midpoint Formula Coordinate Plane

In the coordinate plane, the coordinates of the midpoint of a segment whose endpoints have coordinates (x_1, y_1) and (x_2, y_2) are $(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2})$**.**

Theorem 2-B Midpoint Theorem

If M is the midpoint of $\overline{PQ}$, then $\overline{PM} \cong \overline{MQ}$.