

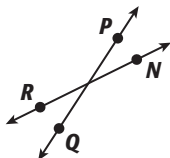
Section Overview

Introduction to Geometry

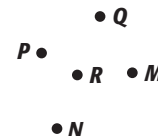
Lesson 9-1

Why? Points, lines, and planes are the foundation of geometry.

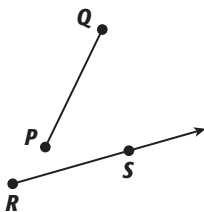
A **line** is a straight path that extends without end in opposite directions. \overleftrightarrow{PQ} and \overleftrightarrow{NR} are lines.



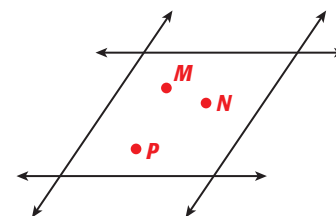
A **point** is an exact location. P , Q , R , M , and N are points.



Line **segments** and **rays** are parts of lines. \overline{PQ} is a line segment. \overrightarrow{RS} is a ray.



A **plane** is a flat surface that extends without end in all directions. Plane MNP is a plane.



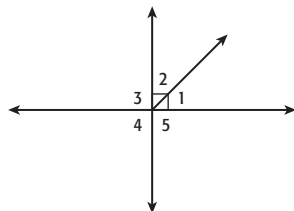
Angles and Angle Relationships

Lessons 9-2, 9-3

Why? Many geometric figures contains angles.

An **angle** is formed by two rays with a common endpoint, called the **vertex**.

acute angle $< 90^\circ$ obtuse angle $< 180^\circ$
straight angle = 180° right angle = 90°



| Complementary Angles | Supplementary Angles | Adjacent Angles | Vertical Angles |
|---------------------------|--|---|---------------------------|
| $\angle 1$ and $\angle 2$ | $\angle 3$ and $\angle 4$ $\angle 4$ and $\angle 5$ | $\angle 1$ and $\angle 2$ $\angle 3$ and $\angle 4$ $\angle 4$ and $\angle 5$ | $\angle 3$ and $\angle 5$ |

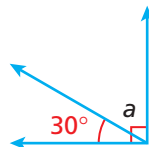
Finding Angle Measures

Lesson 9-4

Why? You can use angle relationships to find angle measures in applications involving architecture and engineering.

The angles are **complementary**.
The sum of the angle measures is 90° .

$$\begin{array}{r} 30^\circ + a = 90^\circ \\ -30^\circ \quad -30^\circ \\ \hline a = 60^\circ \end{array}$$



The angles are **supplementary**.
The sum of the angle measures is 180° .

$$\begin{array}{r} 68^\circ + b = 180^\circ \\ -68^\circ \quad -68^\circ \\ \hline b = 112^\circ \end{array}$$

