## Lesson 1.5: Triangles

In this lesson you will:

- learn how to interpret geometric diagrams
- write definitions for types of triangles

You have learned to be careful with geometry definitions. It turns out that you also have to be careful with diagrams. When you look at a diagram, be careful not to assume too much from it. To assume something is to accept it as true without $\qquad$ or
$\qquad$ .

Things you may assume:

- You may assume that lines are $\qquad$ , and if two lines intersect, they intersect at one $\qquad$ .
- You may assume that points on a line are $\qquad$ and that all points
shown in a diagram are $\qquad$ unless planes are drawn to show that they are noncoplanar.

Things you may not assume:

- You may not assume that just because two lines or segments look parallel that they are parallel-they must be $\qquad$ parallel.
- You may not assume that two lines are perpendicular just because they look perpendicular-they must be marked perpendicular.
- Pairs of angles, segments, or polygons are not necessarily $\qquad$
unless they are marked with information that tells you they must be congruent.
-Example 1: In the diagrams below, which pairs of lines are perpendicular? Which pairs of lines are parallel? Which pair of triangles is congruent?



## Investigation 1.5: "Triangles"

Write a good definition of each boldfaced term. Discuss your definitions with others in your group. Agree on a common set of definitions for your class and add them to your dictionary.

## Right Triangle



Right triangles


Not right triangles

## Acute Triangle



Acute triangles

## Obtuse Triangle



Obtuse triangles


Not acute triangles


Not obtuse triangles

## Scalene Triangle



Scalene triangles


Not scalene triangles

## Equilateral Triangle



Equilateral triangles


Not equilateral triangles

## Isosceles Triangle



Isosceles triangles


Not isosceles triangles

In an isosceles triangle, the angle between the two sides of equal length is called the vertex angle. The side opposite the vertex angle is called the base of the isosceles triangle. The two angles opposite the two sides of equal length are called the base angles of the isosceles triangle.

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