Presenting an Argument

An argument consists of two or more related premises (statements) and a conclusion based which is based on those premises.

There are a number of valid argument forms, the one we will use mostly is the Law of Detachment (Modus Ponens).

Law of Detachment. If we have established $p \longrightarrow q$ is true and the antecedent p is true, then we can conclude the conclusion q is true. Mathematically we write;

$$p \longrightarrow q$$
$$p$$
$$\therefore \ q$$

While statements can either be true or false, arguments are either valid or invalid.

Example If a boy is an athlete, then he is healthy

$$p \longrightarrow q$$

John, a boy, is an athlete p

Therefore, John is healthy $\therefore \ q$

Law of Syllogism If $p \longrightarrow q$ and $q \longrightarrow r$, then $p \longrightarrow r$ is always true. Mathematically we write:

$$p \longrightarrow q$$
$$q \longrightarrow r$$
$$\therefore \ p \longrightarrow r$$

We will use the Laws of Detachment and Syllogism to prove theorems in geometry.