

Appendix B – Terms in Logic and Deductive Reasoning (Syllabus pg. 22)

Ordinary Level

Theorem:	A theorem is a statement which has been proved to be true.
Proof:	A proof is a sequence of statements (made up of axioms, assumptions and arguments) leading to the establishment of the truth of one final statement.
Axiom:	<p>An axiom is a statement which is assumed to be true and is used as a basis for developing a system.</p> <p>Example: Axiom 1 - There is exactly one line through any two given points.</p>
Corollary:	<p>A corollary follows after a theorem and is a proposition which must be true because of that theorem.</p> <p>Example: Corollary 6 - This corollary follows Theorem 20 and states: “If two circles share a common tangent line at one point, then the centres and that point are collinear”.</p>
Converse:	<p>The converse of a theorem is formed by taking the conclusion as the starting point and having the starting point as the conclusion.</p> <p>Example: The converse of Theorem 2 states “If two angles are equal, then the triangle is isosceles”.</p>
Implies:	Implies indicates a logical relationship between two statements, such that if the first is true then the second must be true.

Higher Level

Is equivalent to:	Two things are said to be equivalent if they have the same value but different forms.
If and only if:	Often shortened to “iff”. The truth of either one of the connected statements implies the truth of the other. i.e. they both true or both false.
Proof by contradiction:	A proof by contradiction is a proof in which one assumption is made. Then, by using valid arguments a statement is arrived at which is clearly false, so the original assumption must have been false.