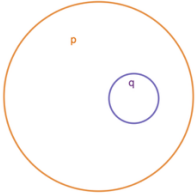


Filled-In Notes Reference (Teacher Copy)

Name	Symbolic Form	In Words (divisibility example)	True?	Equiv. to...
Conditional	$p \rightarrow q$	If div. by 4, then div. by 2.	TRUE	Contrapositive
Converse	$q \rightarrow p$	If div. by 2, then div. by 4.	FALSE e.g. 6	Inverse
Inverse	$\sim p \rightarrow \sim q$	If not div. by 4, then not div. by 2.	FALSE e.g. 6	Converse
Contrapositive	$\sim q \rightarrow \sim p$	If not div. by 2, then not div. by 4.	TRUE	Conditional

Why the equivalences hold — Venn Diagram	Biconditional Statement
 $p \rightarrow q$ means the p-circle sits entirely inside the q-circle. If something is outside q, it must be outside p. That is the contrapositive. If something is inside q, it may or may not be inside p — that is why the converse is not guaranteed. The inverse and converse fail for the same reason: they reverse the nesting direction.	When both $p \rightarrow q$ and $q \rightarrow p$ are true, the two circles are identical — they occupy exactly the same space. Symbolic form: $p \leftrightarrow q$ 'p if and only if q' (iff) All definitions are biconditional. Example: A figure is a square iff it is an equilateral rectangle.