

1.2
#5

undefined terms: point, line, on
axioms

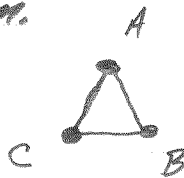
A1: There exactly two points

A2: Every pair of points is on one line

A3: Every pair of lines is on, at least one point

A4: No three points are collinear.

a) The following model demonstrates the consistency of the system.



b) The following models demonstrate the independence of the axioms. Hence, the system is independent.

Model 1 A1 is independent of A2, A3, A4



Two points, one line

Model 2 A2 is independent of A1, A3, A4



Three points, two lines

Model 3 A3 is independent of A1, A2, A4



Model 4 A4 is independent of A1, A2, A3



Three points, one line