

Math 532/736I: Quiz 1

Show ALL Work

Name Some Answers

The problems on this quiz deal with an axiomatic system consisting of the axioms below.

Axiom 1. There exist at least three distinct noncollinear points.

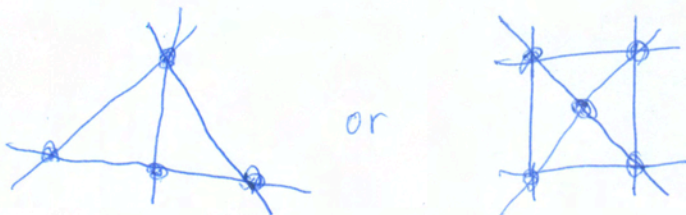
Axiom 2. Given any 2 distinct points, there exists exactly 1 line passing through the 2 points.

Axiom 3. There exists at least one line with exactly 3 points on it.

Axiom 4. Given any line ℓ and any point P not on ℓ , there is another line ℓ' passing through P and intersecting line ℓ .

4 pts

(1) Justify that the axiomatic system is consistent.



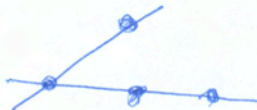
6 pts

(2) Justify that the axiomatic system is independent.

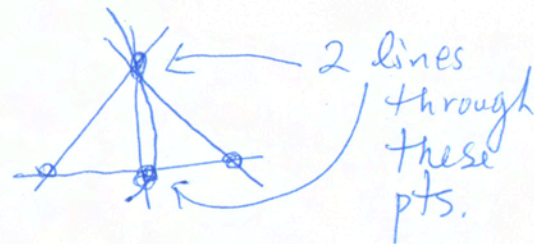
Axiom 1 independent:



Axiom 2 independent:



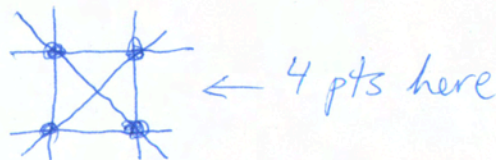
or



Axiom 3 independent:



or



Axiom 4 independent:

