

Due: January 28

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**Name**

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**List of Collaborators**

*“Pure mathematics consists entirely of such assertions as that, if such and such a proposition is true of anything, then such and such another proposition is true of that thing. It is essential not to discuss whether the first proposition is really true, and not to mention what the anything of which it is supposed to be true . . . . If our hypothesis is about anything and not about some one or more particular things, then our deductions constitute mathematics. Thus mathematics may be defined as the subject in which we never know what we are talking about, nor whether what we are saying is true.”* – Bertrand Russell

*“Mathematics is the language with which God has written the universe”* -Galileo Galilei, physicist and astronomer (1564-1642)

**Problems**

Some of the following conjectures about scorpling flugs are true (that is, they can be justified using the axioms) and some are false.

1. Determine which are true and which are false.
2. Select one true conjecture and carefully prove it is true.
3. Select one false conjecture, write out the negation of the conjecture and carefully prove the negation.
4. Present a model of the scorpling flugs axiomatic system. Clearly describe your interpretations of the undefined terms and the carefully specified context of those interpretations.

**Conjectures**

1. There is at least one passive flug.
2. There cannot be two or more passive flugs.
3. There are two distinct flugs where the first indirectly scorples the second. (Indirect scorpling occurs.)
4. There are two distinct flugs where the first directly scorples the second. (Direct scorpling occurs.)
5. No flug can directly scorples more than one flug.
6. Every flug indirectly scorples some other flug.
7. Every flug directly scorples some other flug.
8. No two flugs have the same scorples number.

**Classification (An additional fact for your intellectual pleasure)**

Once we know which of the above are true and which are false it is possible to completely classify the structure of the scorpling flugs. Specifically, except for possibly changing the names of the flugs, we can determine exactly which flugs are scorpled (direct and indirect) by every flug.