**Math 201 Problem sheet 4 3 September 2015**

1. **If Albertine lives in Tianjin then Albertine lives in China.**

Express as a logical statement. (That is, define propositions P and Q and then write as an if-then implication PQ.)

Write the converse. Is it True?

Write the contrapositive. Is it True?

Write the inverse. Is it True?

1. **If two angles are congruent, then they have the same measure.**

Same questions as in (a).

1. **If a quadrilateral is a rectangle, then it has two pairs of parallel sides.**

Same questions as in (a).

1. **If Albertine buys Halloween decorations, then Gilberte raises bats in her basement.**

2. Prove (some of) the following tautologies by means of a Truth Table.)



3. Let P = “I love algebra”, Q = “I like spiders”, and R = “I am vegetarian”.

Write the following symbolically and then make a truth table.

“If I love algebra or like spiders then I am not a vegetarian.”



[Georg Cantor](https://en.wikipedia.org/wiki/Georg_Cantor), father of modern set theory

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