

# Quiz 1 Topics

September 3, 2019

- Properties of functions: one-to-one and onto.
- Linearity
  - Definition and properties of linearity: An operator  $f$  is linear if it satisfies the following conditions:

$$f(a) + f(b) = f(a + b)$$

$$f(ka) = kf(a)$$

- Example of affine function,  $f(x) = ax + b$  Is this function linear? Test by applying the properties of linearity.
- Power Sets
  - Definition of a power set (see Hasti's Set Notes, 3.2.3)
  - Cardinality of a power set (see Hasti's Set Notes, Proposition 3.7)
- Unions and intersections of sets.