**ECS20**

Discussion 4: 10/13 to 10/19 2016

**Exercise 1**

Suppose that  and . Show that  and 

**Exercise 2**

Find counter-examples for each of the following (incorrect) assertions:

a) 

b) 

**Exercise 3**

Show that:



**Exercise 4**

Each tile in a collection of 19 is a square or a triangle and is also red or blue. Suppose that 12 of the 19 tiles are squares. 11 are red, and 4 are blue squares. Using the inclusion-exclusion principle, determine:

(1) The number of tiles that are square or blue;

(2) The number of tiles that are triangles and red;

(3) The number of tiles that are red or squares.

**Exercise 5**

Show that: 