**ECS20**

Discussion 5: 10/20 to 10/26 2016

**Exercise 1**

Determine whether each of these functions is a bijection from R to R:

1. *f(x) = -3x+4*
2. *f(x) = x2+1*
3. *f(x) = (x+1)/(x+2)*
4. *f(x)=(x2+1)/(x2+2)*

**Exercise 2**

Let S = {-1,0,2,4,7}. Find f(S) if:

1. *f(x) = 1*
2. f*(x) = 2x+1*
3. 
4. 

**Exercise 3**

Let *S* be a subset of a universe *U*. The characteristic function *fS*of *S* is the function from U to the set {0,1} such that *fS(x)=1* if *x* belongs to *S* and *fS(x) = 0* if x does not belong to S. Let *A* and *B* be two sets. Show that for all *x* in *U*,

a) 

b) 

**Exercise 4**

Let n be an integer. Show that 