第二次數統作業 姓名:蕭伯任 學號:M052040036

2.27

(a) The standard normal pdf. , where 

(b) The uniform pdf of interval (0, 1). ,where 

(c)

Case1:

If the mode is unique.

Let a be the point of symmetry, b be the mode.

Suppose a is not the mode and  for .

Since b is the mode so



It is contradict tjhat is symmetric. So a must be the mode.

Case2:

If the mode is not unique

It must exist an interval such that

 has the same value in the all interval, i.e,, b is mode.

Supose that , i.e a is not a mode. Let also assume

 for . Since b is a mode and 

then 

It is contradict the fact the is symmetric. So  and is the mode.

(d)

In ,;So 0 is the mode in  and  is unimodal

2.32

 

