**PROBABILITY**: Homework 

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# Problem 1



when ,

when ,





when ,





So 

# Problem 2





# Problem 3

 



So



Suppose  i.i.d follow , then



# Problem 4





Expected area is 1/3.

# Problem 5



# Problem 6

## (a)





## (b)



## (c)





# Problem 7

## (a)





## (b)



# Problem 8

## (a)





As we already know 

So



## (b)

Suppose we flip *i* times and stop, then 

Then



# Problem 9

Number in the sample space is 















So 



# Problem 10 (#8 on page 167)

## (a)





## (b)



# Problem 11(#3 on page 174)





# Problem 12(#4 on page 187)

Let , which means 

Then the Jacobian is





so, 

# Problem 13(#10 on page 240)



# Problem 14(#11 on page 240)

Since



Intuitively we can say  with probability



# Problem 15(#5 on page 247)

## (a)



## (b)



We also know that 

So if we take any value 



this value of x is the median.

# Problem 16(#12 on page 255)















