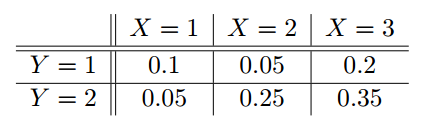
1. Derive the following for random variables and
   1. =
   3. =
2. Given 2 die and with , find the following
   1. has a larger value than

|  |  |
| --- | --- |
|  | Values |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Since there are possible combination of outcomes, and we see from the table that 15 values that are greater than the answer is

* 1. Expected value of the sum of and

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Sums |  |  |  |  |  |  |
|  | 2 | 3 | 4 | 5 | 6 | 7 |
|  | 3 | 4 | 5 | 6 | 7 | 8 |
|  | 4 | 5 | 6 | 7 | 8 | 9 |
|  | 5 | 6 | 7 | 8 | 9 | 10 |
|  | 6 | 7 | 8 | 9 | 10 | 11 |
|  | 7 | 8 | 9 | 10 | 11 | 12 |

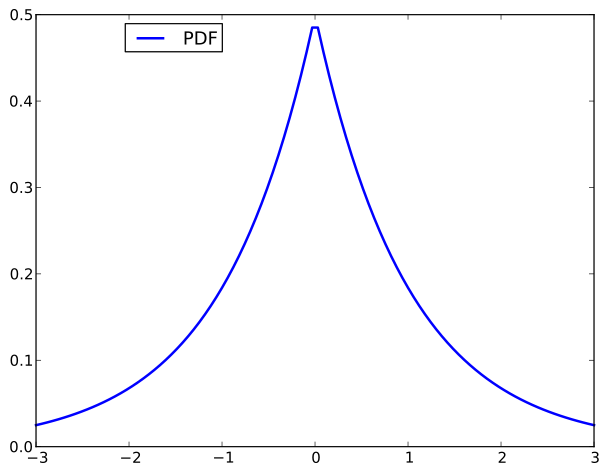
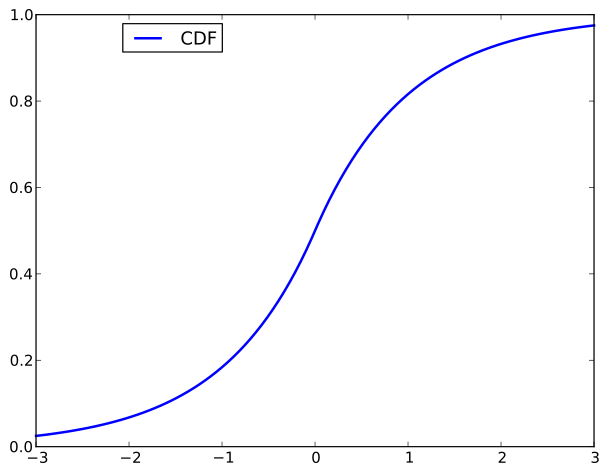
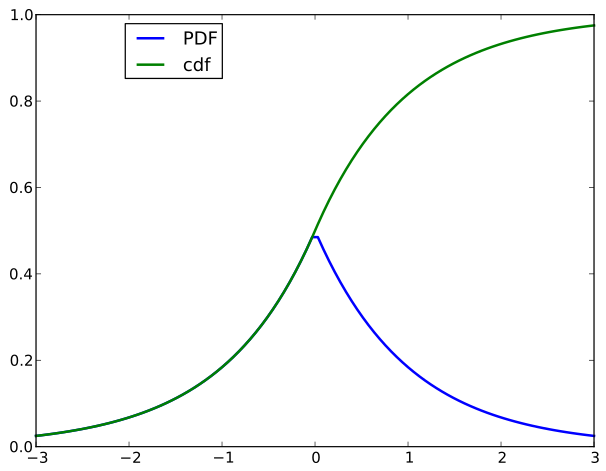
|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Value | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Value |  |  |  |  |  |  |  |  |  |  |  |

1. For what Is ?   
   The probability that a continuous random variable equal any number is exactly 0
2. For and from . pulled from and and , find which model is most likely

Given that

is the most likely model

1. Generated following graphs for the PDF and CDF of Laplace distribution. See code below



import matplotlib as mpl

mpl.use('svg')

import matplotlib.pyplot as plt

import matplotlib.mlab as mlab

from scipy.stats import laplace as l

import numpy as np

import math

x = np.linspace(-3,3,100)

plt.plot(x, l.pdf(x), linewidth=2.0, label='PDF')

plt.plot(x, l.cdf(x), linewidth=2.0, label='CDF')

plt.legend(bbox\_to\_anchor=(.35,1))

plt.savefig('cdf.svg', bbox\_inches='tight')