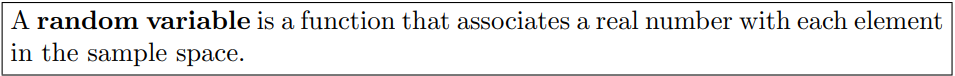
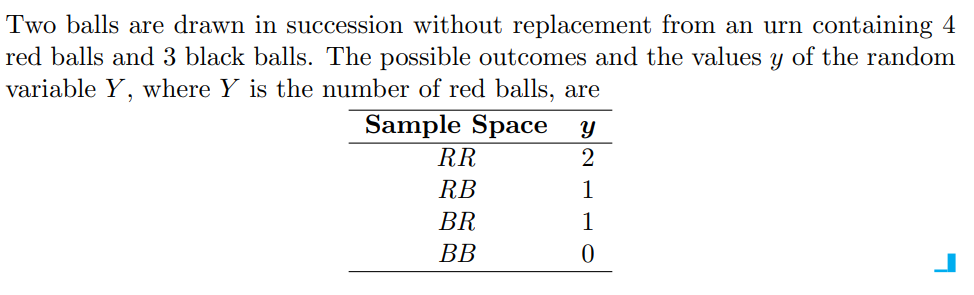
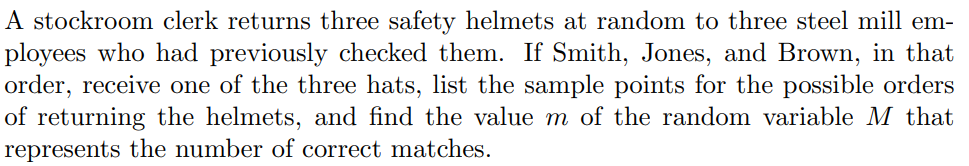
**UNIT-2**

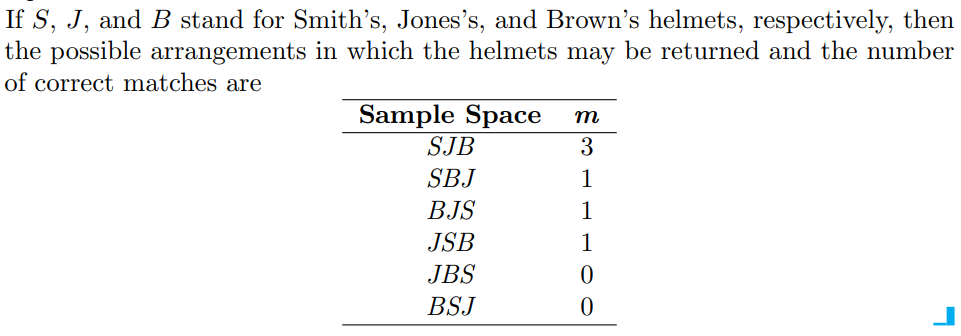


**Example:**

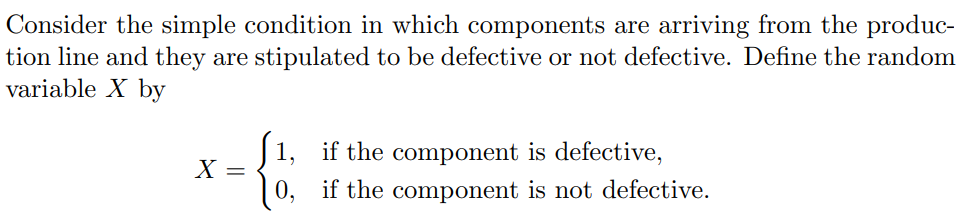


**Example:**





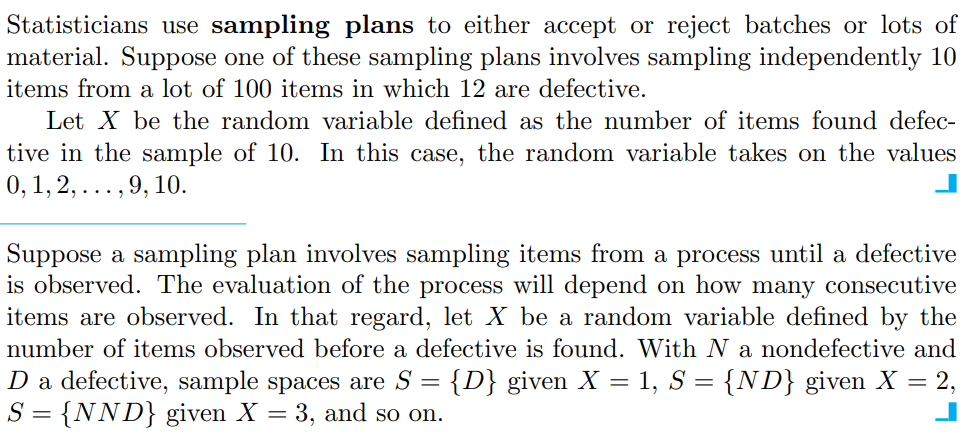
**Example:**



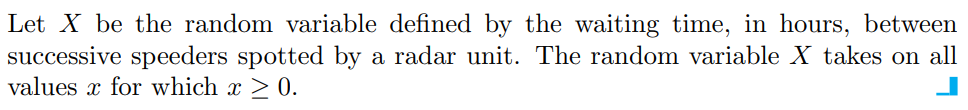
**The random variable for which 0 and 1 are chosen to describe the two possible**

**values is called a Bernoulli random variable.**

**Example:**



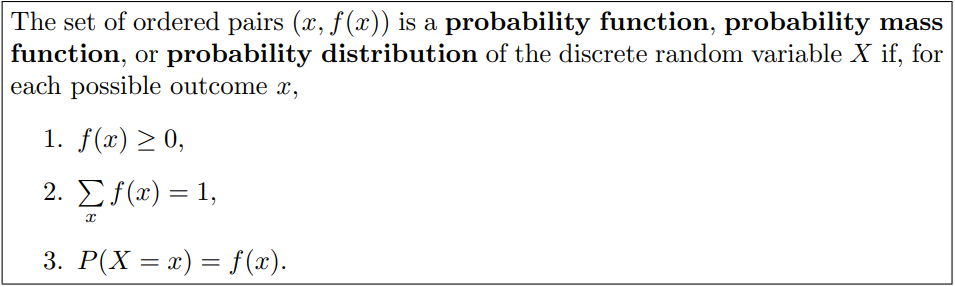
**Example:**

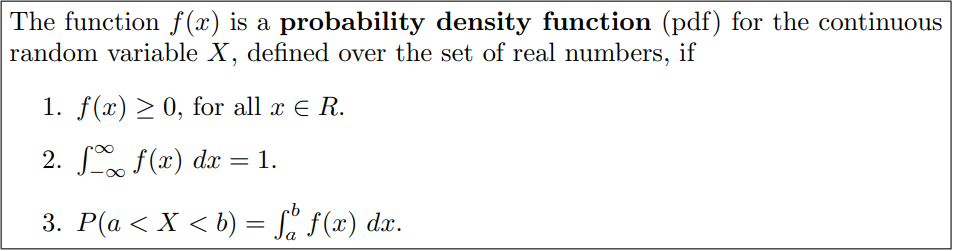


A random variable is called a **discrete random variable** if its set of possible outcomes is countable.

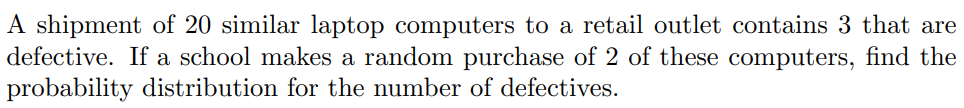
When a random variable can take on values on a continuous scale, it is called a **continuous random variable**.

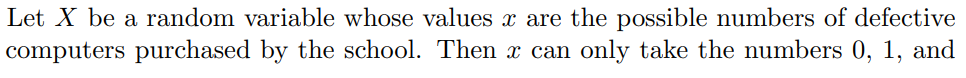
**Probability Distribution Function**

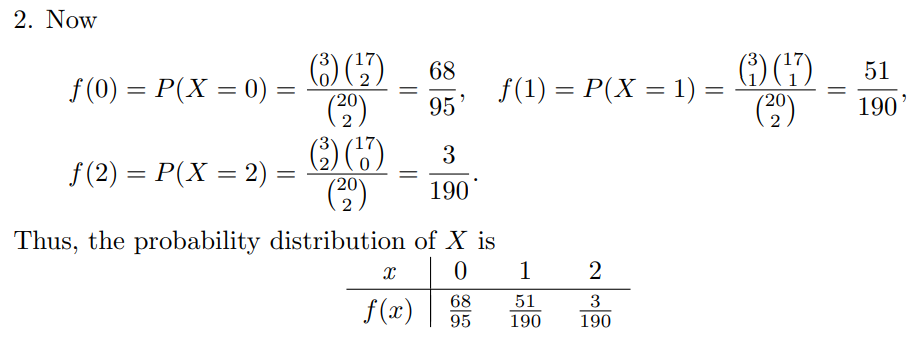




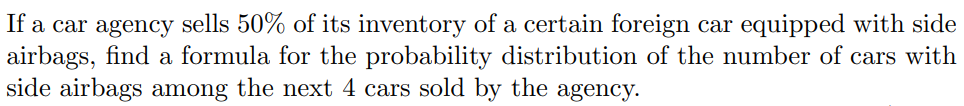
**Example:**

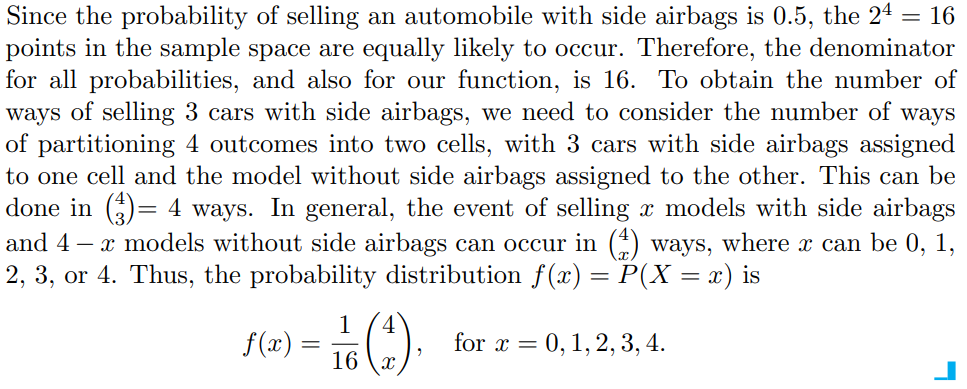




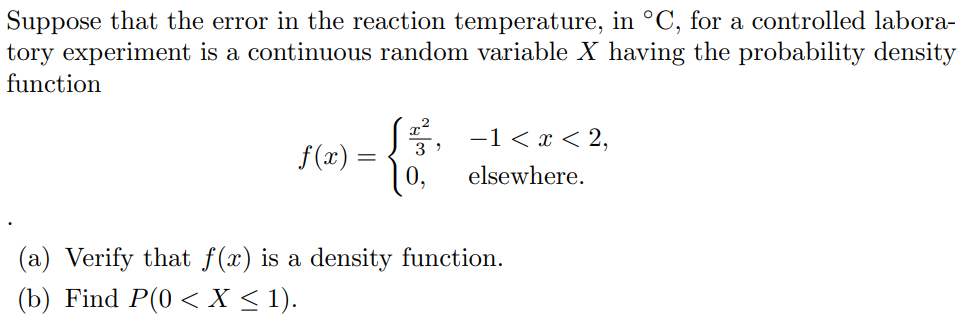


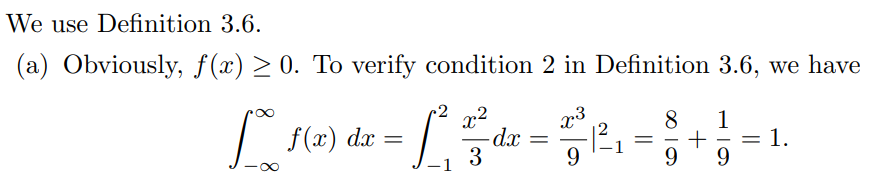
**Example:**

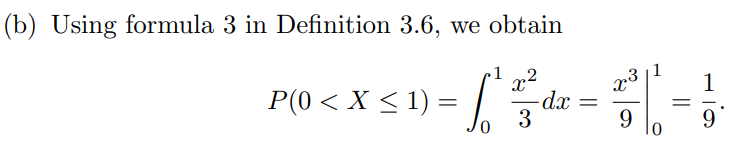




**Example:**



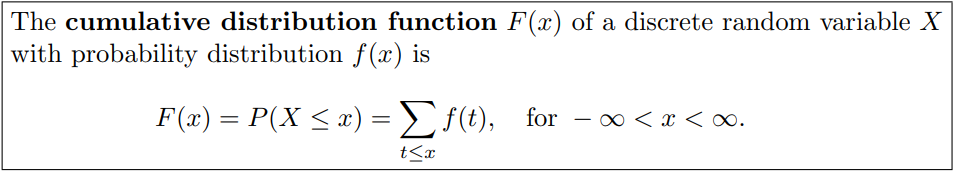


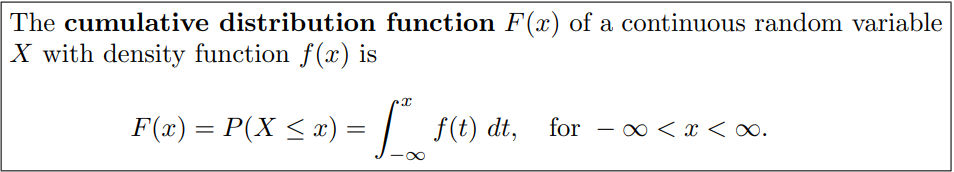


**Note:** When X is a continuous random variable then

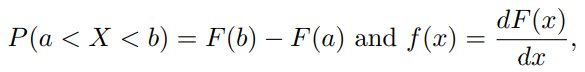
That is, it does not matter whether we include an endpoint of the interval or not. This is not true, though, when X is discrete.

In fact, if ‘X’ is a continuous random variable then where is any constant.



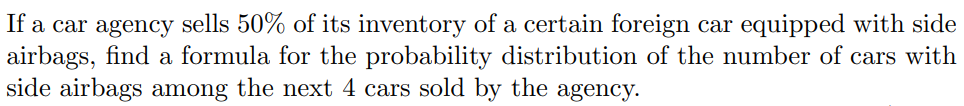


**As an immediate consequence of the above Definition, one can write the two results**

****

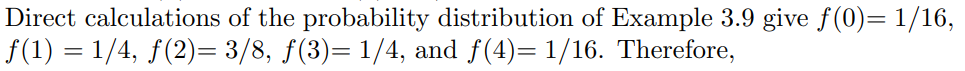
**if the derivative exists.**

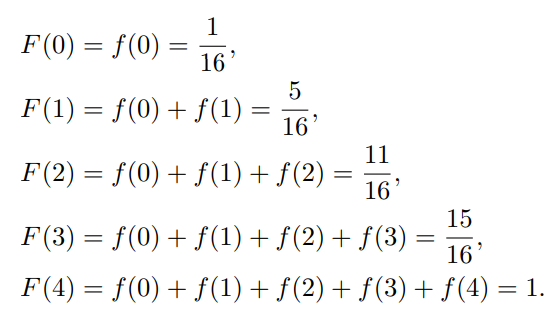
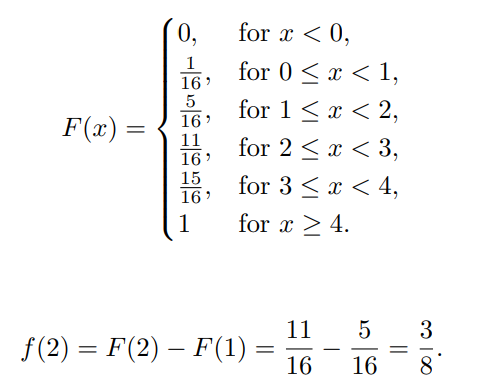
**Example:**



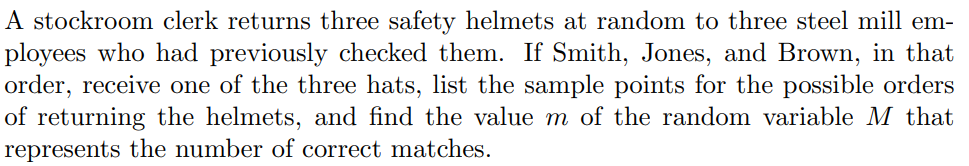
Also find the cumulative distribution function of the random variable X.

Using F(x), verify that f(2) = 3/8.

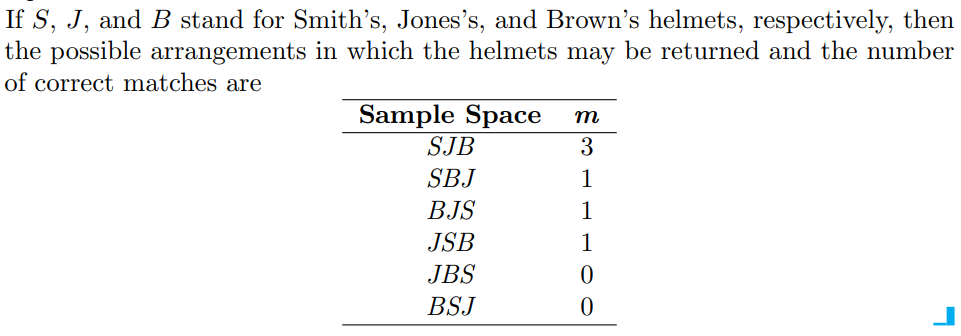


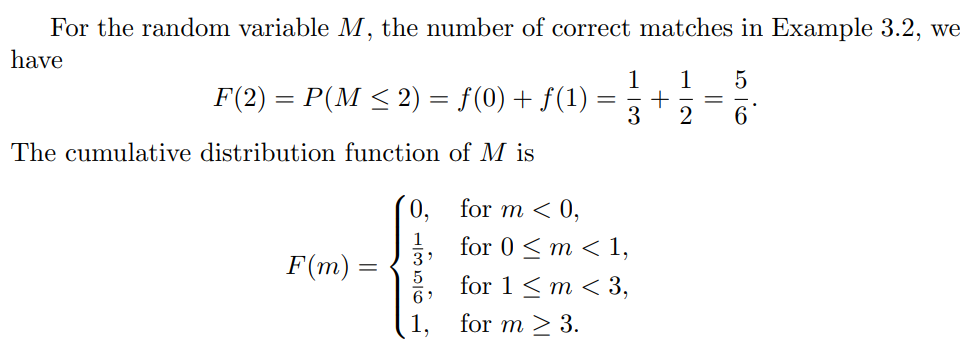
 

**Example:**

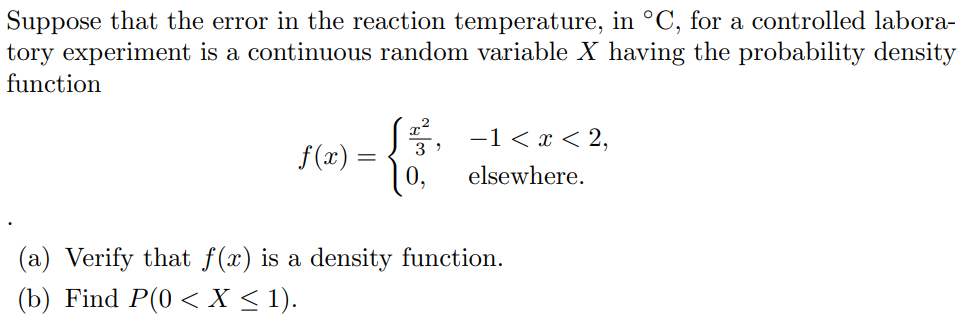


Also find the cumulative distribution function of the random variable M.

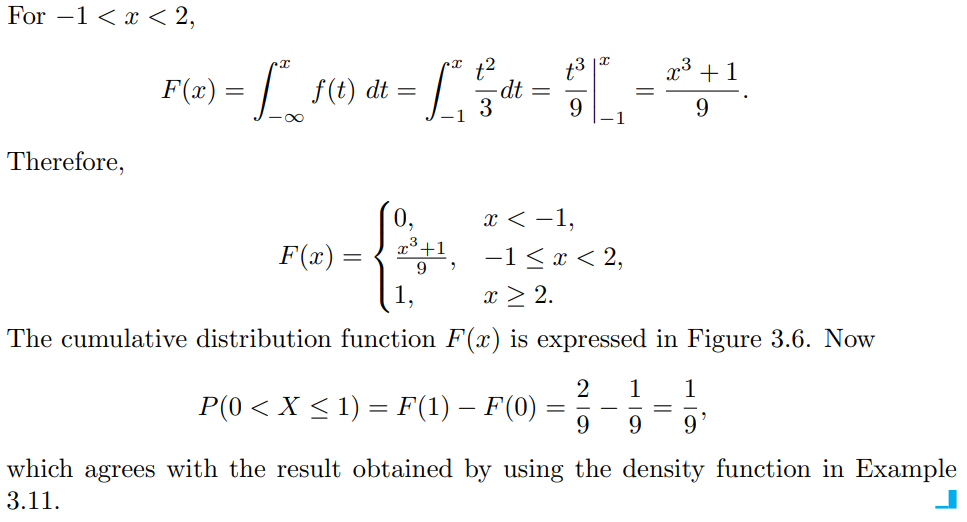




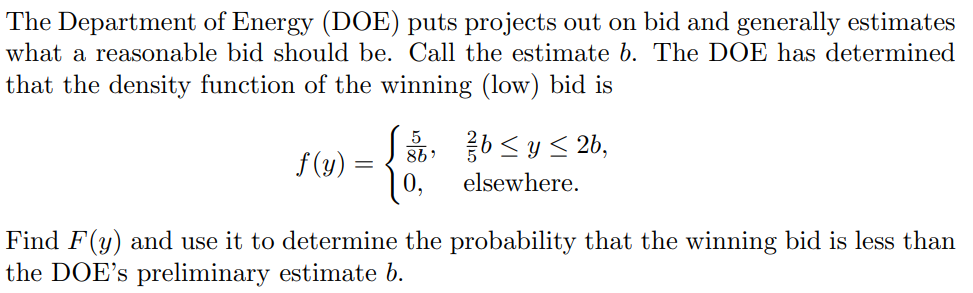
**Example:**

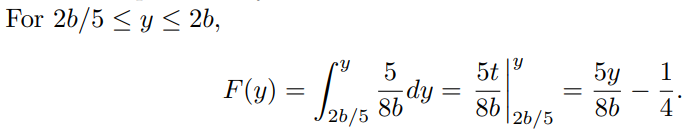


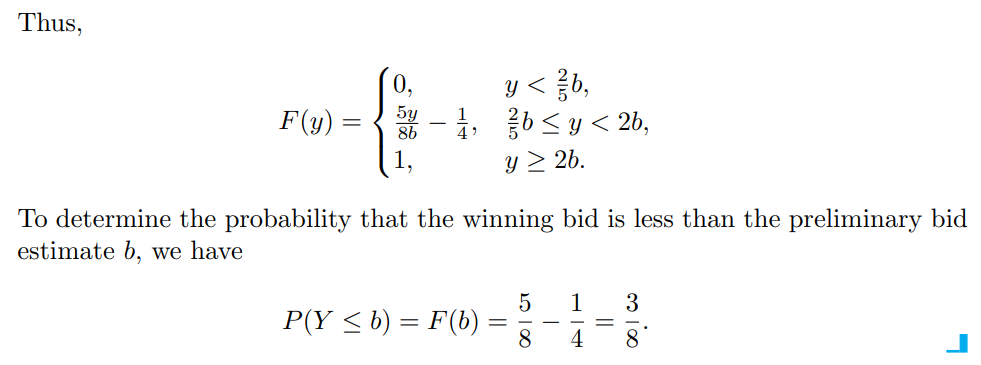
1. Find F(x), and use it to evaluate P(0 < X ≤ 1).

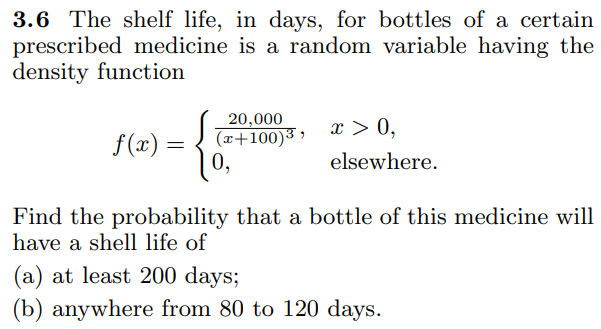
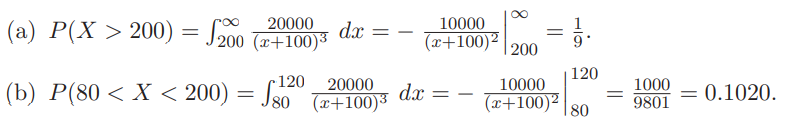


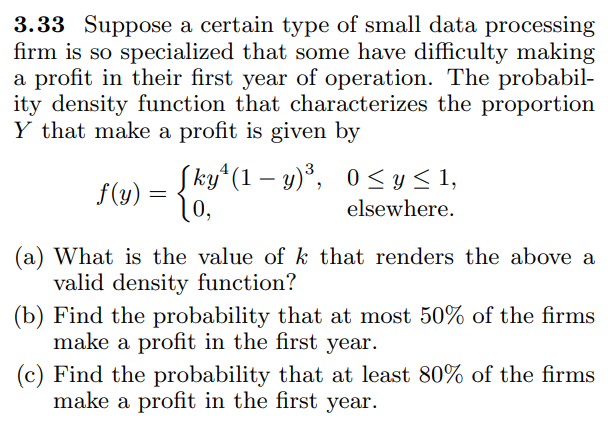
**Example:**

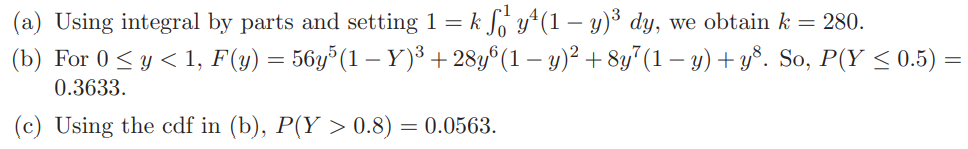


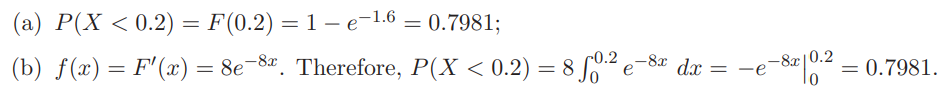
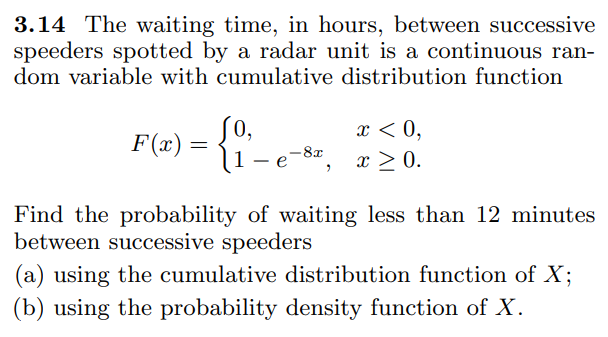


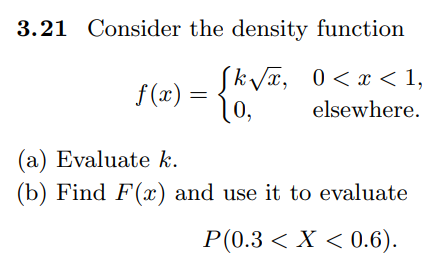


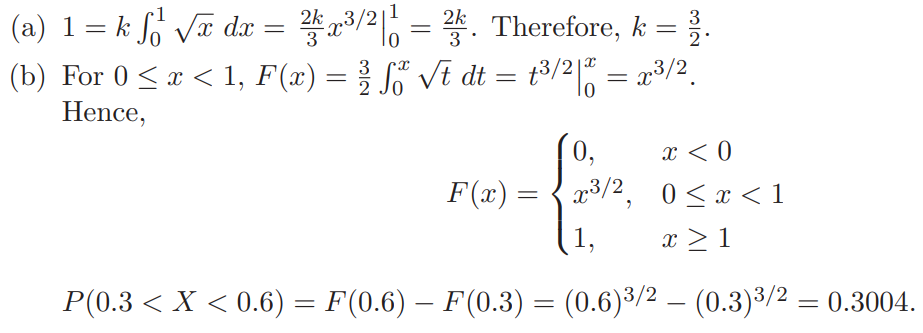
 

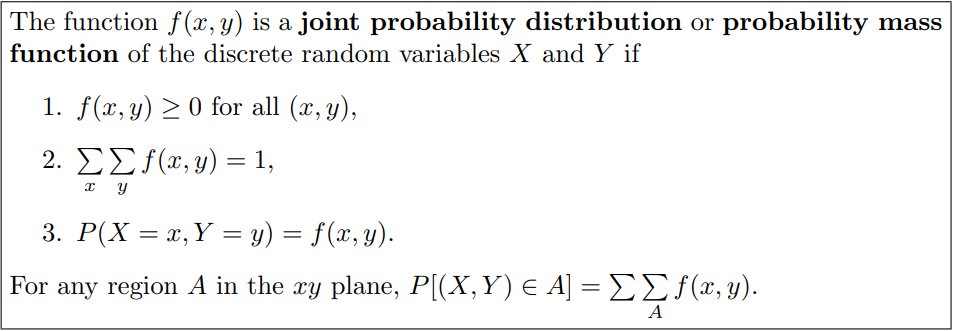




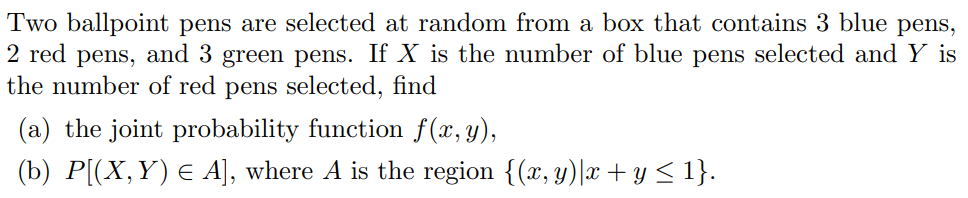


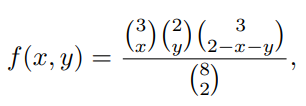
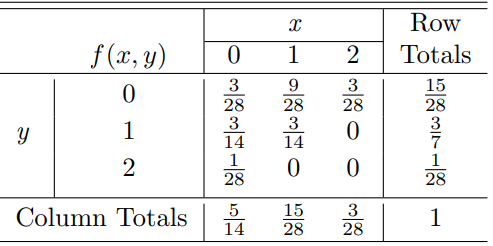


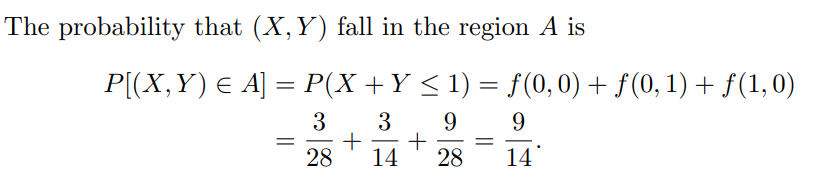


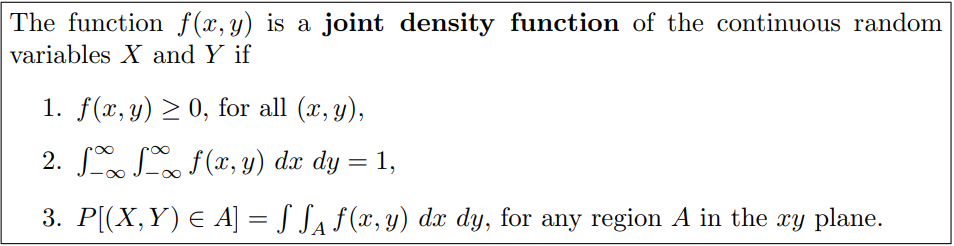


**Example:**

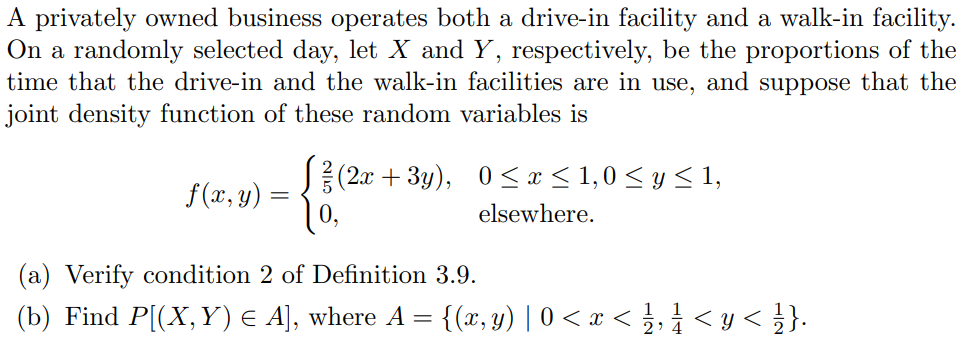


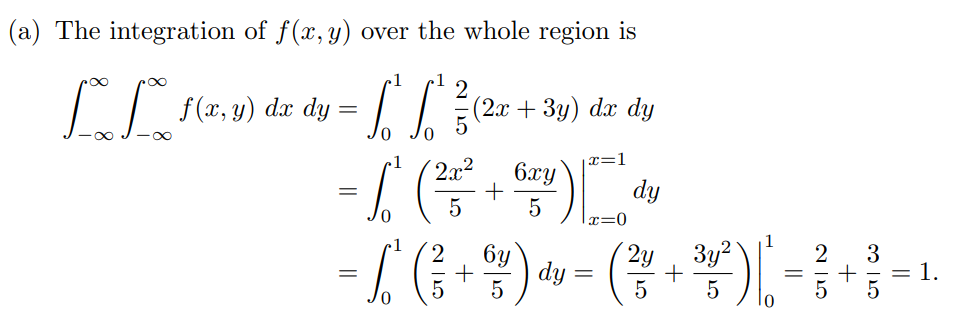


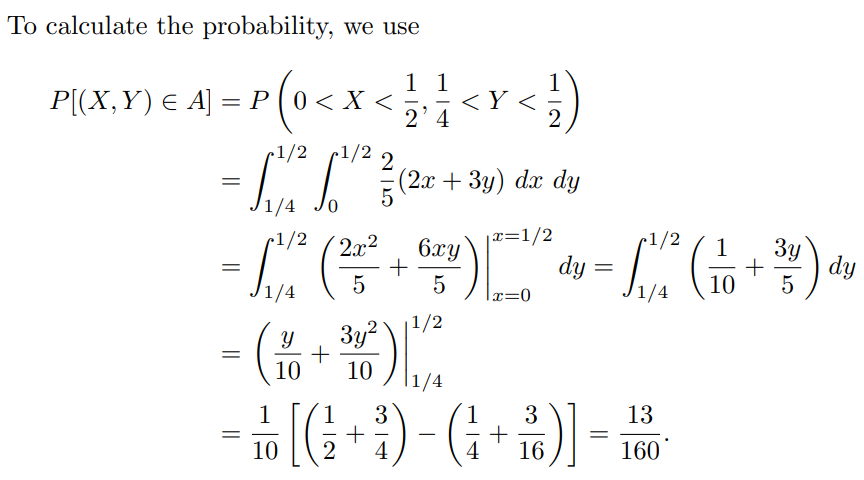


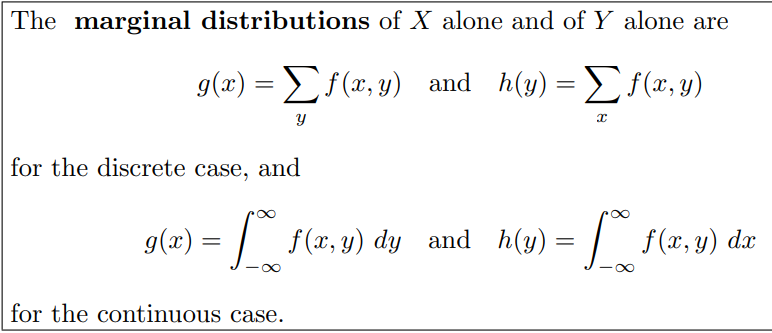


**Example:**

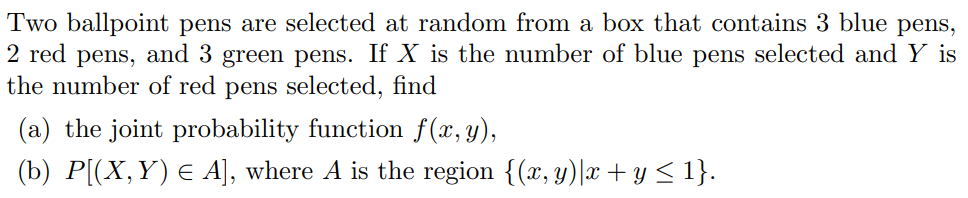


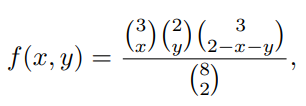
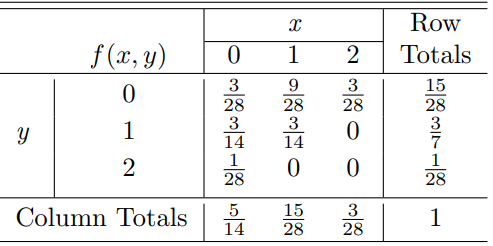


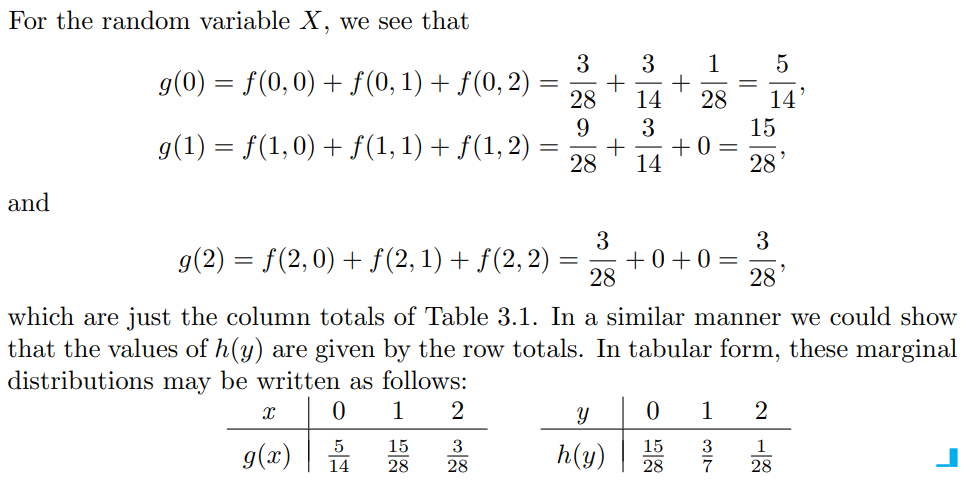




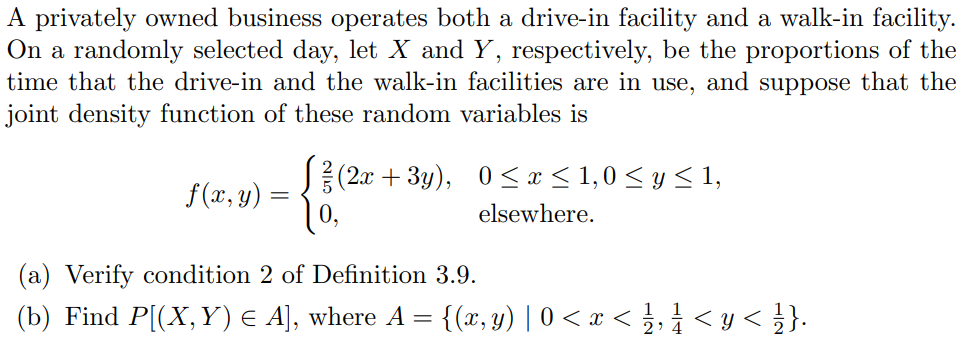
**Example:**

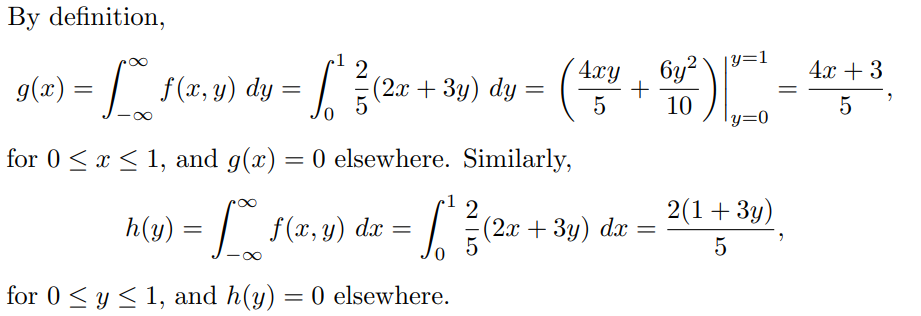


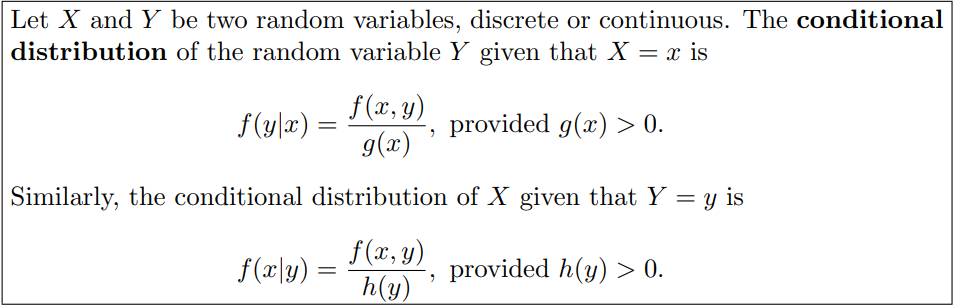


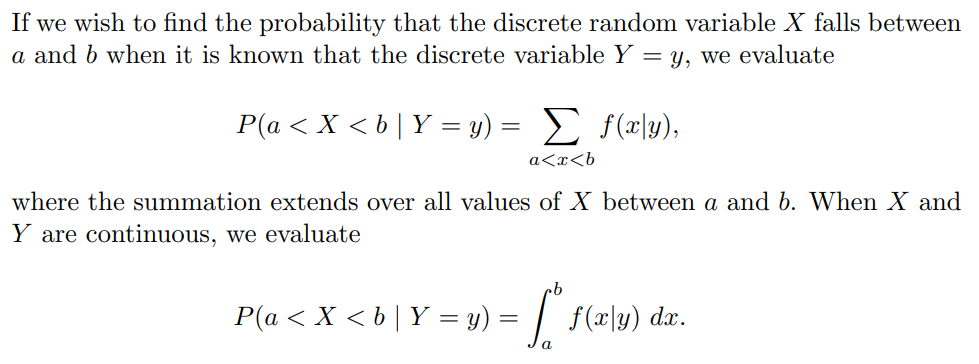


**Example:**

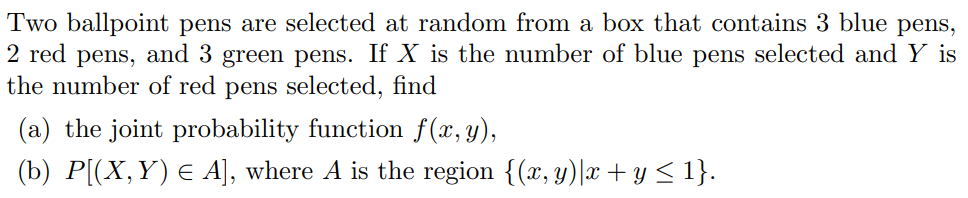




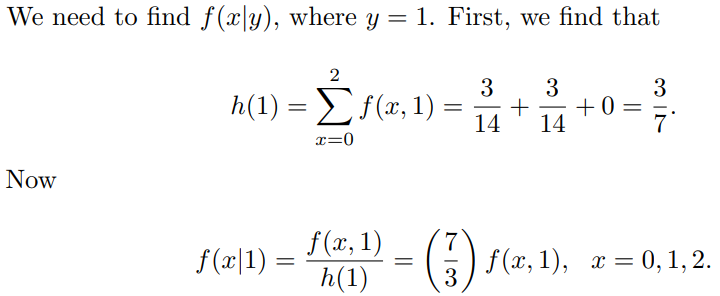


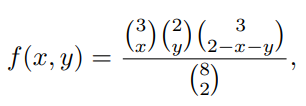
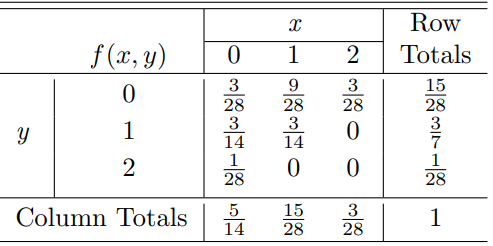


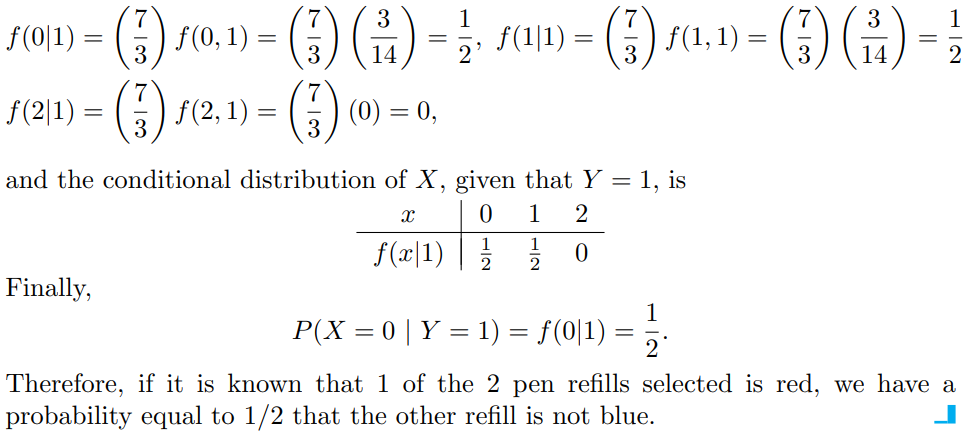
**Example:**



Find the conditional distribution of X, given that Y = 1, and use it to determine P(X = 0 | Y = 1).







**Example:**

