Discussion 5 - Ishita Dutta

Problem 1

Create a function that will take in a vector x, with corresponding probabilities p.x,assuming that these two vectors correspond to a discrete random variable. Using the formulas for the mean and variance for a discrete random variable, have the function return the mean and variance of the following:

```
#functions for finishing question 1:
find_mean = function(x, prob.x){
  return(sum(x * prob.x))
}

find_variance = function(x, probability.x){
  return(sum((x - find_mean(x, probability.x))^2 * probability.x))
}
```

a)

```
#question
x = c(0,1,2,5,6,10)
p.x = c(0.50,0.05,0.10,0.05,0.05,0.25)

#answer
find_mean(x, p.x)
```

```
## [1] 3.3
```

```
find_variance(x , p.x)
```

```
## [1] 17.61
```

b)

```
#question
x = seq(-20,0,2)
p.x = (1:11)/sum(1:11)

#answer
find_mean(x, p.x)
```

```
## [1] -6.666667
```

```r
find_variance(x , p.x)
```

```
## [1] 28.88889
```

c)

```r
#question
x = 0:5
p.x = dbinom(0:5,5,0.50)

#answer
find_mean(x, p.x)
```

```
## [1] 2.5
```

```r
find_variance(x , p.x)
```

```
## [1] 1.25
```