MA677Assignment1

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Ch3-p102
To prove the m is in the range of [69, 73]
According to the paragraphs on page 102, the desired significant level is 0.05
Given:

$$z = \frac{\hat{p} - p_o}{\sqrt{\frac{p_o(1-p_o)}{n}}}$$

While

$$z = \pm 1.65$$

We have:
1)

```
n=100
#p_hat
p_hat = 1.65 * sqrt(0.6*0.4) / 10 +0.6
p_hat
```

```
## [1] 0.6808332
```

```
#m
m = p_hat*n
head(m)
```

```
## [1] 68.08332
```

And:
2)

```
#p_hat
p_hat = -1.65 * sqrt(0.8*0.2) / 10 +0.8
p_hat
```

```
## [1] 0.734
```

```
#m
m = p_hat*n
head(m)
```

```
## [1] 73.4
```

##To illustrate in Power Curve We have alpha = 0.05
Critical Value = m = 1)69; 2)73
n = 100

```r
p.a = seq(0.4, 1, by=.01)
p.rej_1 = 1 - pbinom(69, 100, p.a)
p.rej_2 = 1 - pbinom(73, 100, p.a)
plot(p.a, p.rej_1, type="l", main="Power Curve")
par(new = TRUE)
plot(p.a, p.rej_2, type="l", main="Power Curve")
 rect(xleft=0.6, ybottom=0.05, xright=0.8, ytop=0.95, lty=4)
```