# Midterm 2

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## 1a:

```
pvec = c(1, 3, 5)
var2vec = c(12.021, 10.290,  4.44)
myAIC <- function(p, var2) {
  val1 = 90 * log(var2)
  val2 = 2 * p
  return(val1 + val2)
}
finalvec = vector()
for(i in 1:3) {
  print(myAIC(pvec[i], var2vec[i]))
}
```

```
## [1] 225.799
## [1] 215.8055
## [1] 144.1589
```

*Solution:* On the basis of the AIC criterion, the best model is the AR(2) model, as it has the smallest AIC value.

## 1b:

```
## [1] -1.053937 21.201052
```

## 2a:

```
n = 90
Tn = (17.7/((1 + 0.5048)^2))
var.squared = Tn/n
var.squared
```

```
## [1] 0.08685067
```

## 2b:

```
lower =  54.956 - (1.96 * (var.squared ^ 0.5))
upper =  54.956 + (1.96 * (var.squared ^ 0.5))
lower
```

```
## [1] 54.37838
```

```
upper
```

```
## [1] 55.53362
```

Interval in between [54.37838, 55.53362].

## 2c:

```
(-0.5048) / 0.0934
```

```
## [1] -5.404711
```

This value is much smaller than 1, so we can easily reject the Ho = 0 at level 0.01.

## 3b