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Econ 108

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### Econ 108 Pset 2

1)

a) The expectation of  $Y_i$  will minimize the expected squared error.  $C =$

b) The median of  $Y_i$  will minimize the expected absolute error.  $C = 19$ .

2)

a) The standard deviation is the square root of variance. The population variance is 2.69. The standard deviation is 1.64.

b)

```
n <- 50; xstdev <- c(); R <- 100000
```

```
for (r in 1:R) {
```

```
  xsample <- allx[sample.int(N, n)]
```

```
  xstdev <- c(xstdev, sd(xsample))
```

```
}
```

```
hist(xstdev, probability=TRUE, breaks=100, main=paste("histogram of sample standard deviation of size",
```

```
n))
```

```
lines(density(xstdev), col="red")
```

```
expectedbarx <- mean(xstdev); varofbarx <- var
```

c) The averaged sample standard deviation across the simulation draws was 1.61. It is biased, as the distribution is slightly skewed to the right.

d)  $\text{sd}(\text{xstdev}) = 0.3011386$

e)

f)

g)

percentile method

reverse percentile method

non-parametric bootstrap for confidence intervals

3)

a)

b)

c)

d)

1)

2)

3)

4)

e)

1)

2)

3)

4)

5)

6)