Sample Mean Example

```r
favstats(~Population, data = counties)
```

<table>
<thead>
<tr>
<th></th>
<th>min</th>
<th>Q1</th>
<th>median</th>
<th>Q3</th>
<th>max</th>
<th>mean</th>
<th>sd</th>
<th>n</th>
<th>missing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>67</td>
<td>11206</td>
<td>24595</td>
<td>61758</td>
<td>9519338</td>
<td>89596</td>
<td>292462</td>
<td>3141</td>
<td>0</td>
</tr>
</tbody>
</table>

```r
samplemeans <- do(10000) * mean(~Population, data = deal(counties, 100))
favstats(~result, data = samplemeans)
```

<table>
<thead>
<tr>
<th></th>
<th>min</th>
<th>Q1</th>
<th>median</th>
<th>Q3</th>
<th>max</th>
<th>mean</th>
<th>sd</th>
<th>n</th>
<th>missing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>36301</td>
<td>70189</td>
<td>84523</td>
<td>102490</td>
<td>261487</td>
<td>89826</td>
<td>28863</td>
<td>10000</td>
<td>0</td>
</tr>
</tbody>
</table>

```r
densityplot(~result, data = samplemeans, plot.points = F)
```

Babies

Last year in the United States, of all live births, the mean weight of babies born was 3369 gm. and the standard deviation was 581 gm. There are all sorts of reasons why a normal model might not be a good one (think about the extremes). But let’s use a normal model anyway.

1. What proportion of babies born weighed less than 3200 gm? ________

2. What is the probability that a randomly selected newborn weighed more than 3500 gm? ________

3. Three babies were born to three different sisters. What is the probability that exactly one of them weighed more than 3500 gm? ________

4. Given a random sample of 100 such babies, what is the probability that their average weight is less than 3250 gm? ________

Chapel: *Singing*, Student Worship Team
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