

## Professor Notes About the “Normal Distributions” Homework

- I suppressed the printing of plots just to save space. It is a good idea when you are first learning normal distribution calculations to both draw the plots by hand and with R so as to catch mistakes.
- No sentence should start with a number. In other words, don't do this – “17% of home ranges ...” Notice the wordings of my answers below.
- For the last question, to find the two values that contain the most common 48%, you must find the two values that have 26% (i.e.,  $\frac{100-48}{2}$ ) in the upper- and lower-tails.
- Generally, percentages should be rounded to one decimal, proportions to three decimals, and values from reverse calculations to decimals that the variable was recorded in.

## SAT Scores

1. SAT score is a discrete quantitative variable.
2. The proportion of students not accepted by School A is 0.221.
3. The percentage of students accepted by School B is 6.2%.
4. The percentage of students accepted by School A but not School B is 71.7%.
5. School C should set the acceptance criterion at 594.

## Urban Deer Relocations

1. The proportion of deer with home ranges between 0.2 and 0.4 km<sup>2</sup> is 0.707.
2. The proportion of deer with a home range greater than 0.32 km<sup>2</sup> is 0.417.
3. The home range such that 17% of the deer have a larger home range is 0.39 km<sup>2</sup>.
4. The home range such that 32% of the deer have a smaller home range is 0.26 km<sup>2</sup>.
5. The proportion of deer with a home range less than 0.4 km<sup>2</sup> is 0.854.
6. The most common 48% of home ranges are between 0.24 and 0.36 km<sup>2</sup>.

## R Appendix.

```
distrib(500,mean=550,sd=65)
distrib(650,mean=550,sd=65,lower.tail=FALSE)
ab <- distrib(650,mean=550,sd=65)
a <- distrib(500,mean=550,sd=65)
ab-a
distrib(0.25,type="q",mean=550,sd=65,lower.tail=FALSE)
```

```
ab <- distrib(0.4,mean=0.3,sd=0.095)
a <- distrib(0.2,mean=0.3,sd=0.095)
ab-a
distrib(0.32,mean=0.3,sd=0.095,lower.tail=FALSE)
distrib(0.17,type="q",mean=0.3,sd=0.095,lower.tail=FALSE)
distrib(0.32,type="q",mean=0.3,sd=0.095)
distrib(0.4,mean=0.3,sd=0.095)
distrib(0.26,type="q",mean=0.3,sd=0.095)
distrib(0.26,type="q",mean=0.3,sd=0.095,lower.tail=FALSE)
```