Question 1:

```
ObamaPerHand = newhamp[newhamp$pObama & newhamp$votesys=="H",]
ObamaPerMach = newhamp[newhamp$pObama & newhamp$votesys=="D",]
DeanPerHand = newhamp[newhamp$Dean & newhamp$votesys=="H",]
DeanPerMach = newhamp[newhamp$Dean & newhamp$votesys=="D",]

plot(ObamaPerHand$pObama, DeanPerHand$Dean, pch = 6, xlab = "Obama Voters", ylab =
"Dean Voters",
    main = "Dean vs Obama Proportions", col="blue")
points(ObamaPerMach$pObama, DeanPerMach$Dean, pch = 1, col="orange")
legend("topleft", legend = c("Hand-Counted Votes", "Machine-Counted Votes"), pch = c(6, 1),
col = c("blue", "orange"))
```

Question 2:

A. It would be a normal distribution
B. (see code below)

```
x <- seq(-4, 4, length=1000)
y <- dnorm(x, mean=0, sd=1)
plot(x, y, type="l", lwd=1)

DF1 <- dt(x, 20)
lines(x, DF1, type="l", lwd=1, col="Red")

DF2 <- dt(x, 3)
lines(x, DF2, type="l", lwd=1, col="Green")

DF3 <- dt(x, 1)
lines(x, DF3, type="l", lwd=1, col="Blue")
```

Question 3:

A. Null Hypothesis: Avg Age of American voters does not equal 50; Alternate is the average age does equal 50
B. SE= 0.47; Z score = -0.74; P value (approximately) = 0.23

C. With the given P value in "B", the Null Hypothesis stands. The Average age of American voters is 50 or rather the difference between the mean found from the dataset (49.65) and the mean suggested (50) are not significantly different.
D. [48.73, 50.57]
E. "D" Proves "C" with 95% confidence. 95% of the time the sampling mean is going to be inside this interval.

Question 4:

A. I would use a small n T distribution formula (test average - hypothesis average)/ (test SD over the square root of the Population). The answer = 1.67. See notes for work.
B. The given sample standard deviation is equal to the population Standard Deviation.
C. The test statistic = 1.67; P value = 0.058; this value is greater than the alpha, proving the null hypothesis.
D. No you cannot. It's too small of a sample size to use a different test statistic.
E. You have to assume the given sample values apply to the population
F. SE = 0.3; T score = 1.67; P Value = 0.048; The conclusion is smaller than the alpha, disproving the null hypothesis.
G. The answer either prove or disprove the null hypothesis based on the type of test (T or Z) that is used. I think this has to do with T tests dealing with smaller populations and therefore needing to include a greater range of responses in its bell curve.

Question 5:

A. The Population distribution for two choices is bimodal and the Sampling distribution would be normal
B. The pihat value = 341
C. SE = .019

Question 6:

A. In their conclusion, Green, Gerber, and Nickerson state that "mobilization campaigns have the potential to increase turnout substantially in local elections." The authors found in their experiment that contacting registered voters via "door-to-door campaigns" significantly increases the likelihood that they will vote in elections.
B. The authors examine variables that are "manipulated" by an experimental study. Therefore, the treatment variables are whether the voters were contacted by the canvassers.
C. The 7% increase the study saw after their canvassing.
D. The authors can claim that their findings are causal, because the study had a large effect on participants. Every time the potential voter was successfully contacted by the

canvasser, that potential voter's likelihood of voting in the election was raised by 7%, according to the authors.

Question 7:

A. SE = 0.105; T Score = 1.24; P value = 0.1075; When alpha = .05, the given P value being greater than that shows the population means do not differ.
B. There would be no zero in the confidence interval equation. The formula only deals with the two averages in question.
C. I believe the distribution is approximately normal because of the size of the population taken. This strengthens the validity of my above responses.

Question 8:

SE= 0.898; T Score = 0.145; P value = 2.060; With this small of a distribution the P value is too high which cannot happen. To mean this means when the population shrinks to such a degree, the tails become too fat to be useful.

Collaborated with Michael Rimmey and Luke Ehrenstrom