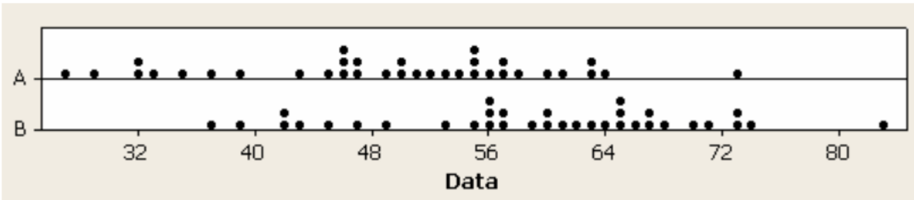
Math 112 Sample Final Exam Questions Name_______________________________________

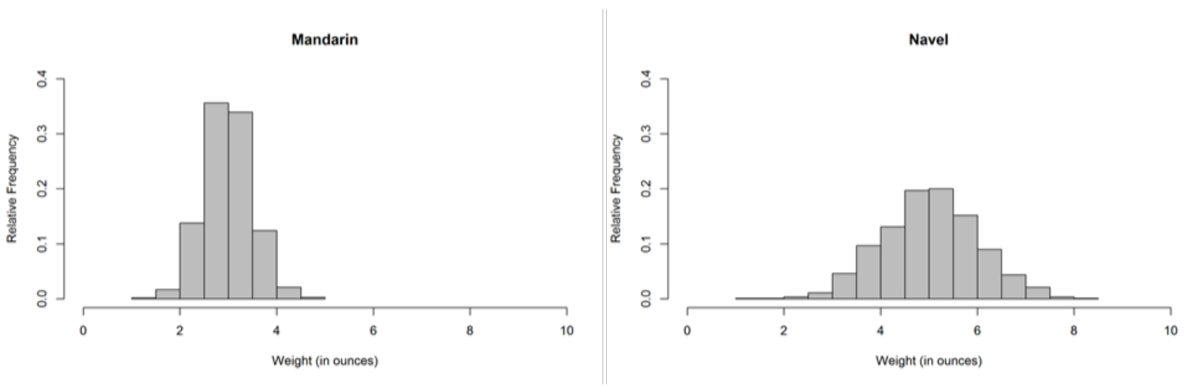
Multiple Choice: Select the **best** response to each question.

1. Dotplots of two integer data sets are shown below. The mean in data set A is 50 and the standard deviation 10. The mean in data set B is 60. What is the standard deviation in data set B?



(A) 12 B 20 (C) 10 (D) cannot be determined from the graph

2. A citrus farmer grows two types of oranges: mandarin and navel. The distributions of weight for each type of orange grown on his farm are shown in the histograms below.



The farmer will select a random sample of 100 mandarin oranges and a random sample of 100 navel oranges. Which sample is more likely to produce a sample mean within 1 ounce of the mean weight for its population?

(A) The sample of mandarin oranges because the weights of mandarin oranges are less variable than the weights of navel oranges.

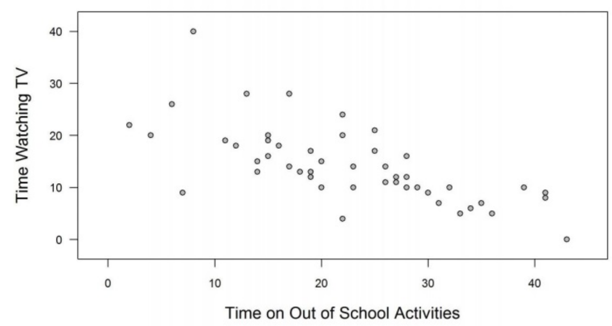
(B) The sample of navel oranges because the weights of navel oranges have a greater mean than the weights of mandarin oranges.

(C) Both samples are equally likely to produce a sample mean within 1 ounce because the sample sizes are the same.

(D) It is impossible to know which sample is more likely to produce a sample mean within 1 ounce without the actual data from the samples.

3. Each student in the eighth-grade monitored the time (in hours) he or she spent on out of school activities and the time (in hours) he or she watched TV for one week. The resulting data are summarized in the scatterplot below.

Based on the scatterplot, which of the following is a correct conclusion?



(A) Due to extreme values, we cannot tell whether there is a relationship between time on out of school activities and time watching TV.

(B) Generally, the more time students spend on out of school activities the less time they tend to spend watching TV.

(C) Generally, the more time students spend on out of school activities the more time they tend to spend watching TV.

(D) The amount of time spent watching TV does not seem to be related to the amount of time students spend on out of school activities.

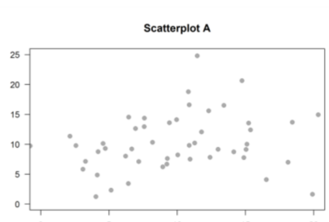
4. A survey of 400 adults in a certain city was conducted. Data on gender and support for a particular candidate are summarized in the two-way table below.

	Male	Female	Total
Support	112	102	214
Do Not Support	70	116	186
Total	182	218	400

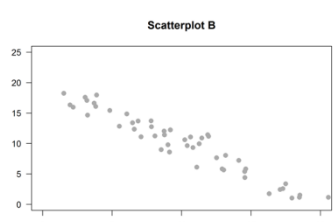
What proportion of those who responded "Support" are male?

(A) 112/400 (B) 182/400 (C) 112/214 (D) 112/182

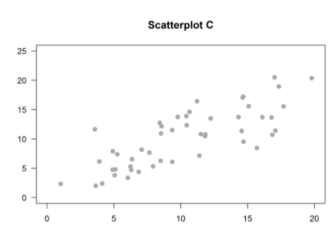
5. The correlation coefficients calculated from the data sets used to construct the scatterplots below are –0.96, –0.07, 0.14, and 0.80. Which of the four scatterplots corresponds to a correlation coefficient of 0.80?



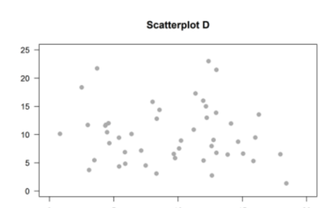
(A)



(B)



(C)



(D)

6. The center for the distribution of sample means is

(A) p (B) $\hat{p}$ (C) μ (D) $\bar{x}$ (E) σ

7. In a random sample of high school seniors, the proportion who use text messaging was 0.88. In a random sample of high school freshmen, this proportion was 0.68. Researchers found the difference in proportions to be statistically significant and obtained one of the following numbers for the p-value. Which is it?

(A) 0.03 (B) 0.20 (C) 0.78 (D) 1.56

8. A survey of 625 randomly selected students was conducted to determine student opinion about music. The survey reported that 36 percent of the students surveyed preferred country/western music. The survey estimate had a margin of error of 4 percentage points. A margin of error is reported because

(A) Sample proportions vary from sample to sample.

(B) Students may intentionally respond incorrectly.

(C) Students may misunderstand the survey questions.

(D) The people doing the survey may have recorded results incorrectly.

9. If the confidence level were decreased from 99% to 90%, the confidence interval would be

(A) wider (B) narrower (C) stay the same (D) can't tell

10. Which of the following is the most appropriate method to test the claim that reaction time is slower after taking a nap?

(A) two sample proportions

(B) one sample proportion

(C) two sample means, independent samples

(D) two sample means, dependent samples (matched pairs)