MINI-AP (6 MC and 1 FR) Write your response to the FR question on separate paper please...

9. Based on a survey of a random sample of 900 adults in the United States, a journalist reports that 60 percent of adults in the United States are in favor of increasing the minimum hourly wage. If the reported percent has a margin of error of 2.7 percentage points, which of the following is closest to the level of confidence?

(A) 80.0%
(B) 90.0%
(C) 95.0%
(D) 95.5%
(E) 99.0%

A concert hall has 2000 seats. There are 1200 seats on the main floor and 800 in the balcony. Forty percent of those in the balcony buy a souvenir program. Fifty percent of those on the main floor buy a souvenir program. At a certain performance all seats are occupied. If an audience member is selected at random, what is the probability that the person purchased a program?

(A) 0.225
(B) 0.44
(C) 0.45
(D) 0.46
(E) 0.92

Which one of the following would be a correct interpretation if you have a *z*-score of +2.0 on an exam?

(A) It means that you missed two questions on the exam.
(B) It means that you got twice as many questions correct as the average student.
(C) It means that your grade was two points higher than the mean grade on this exam.
(D) It means that your grade was in the upper 2% of all grades on this exam.
(E) It means that your grade is two standard deviations above the mean for this exam.

Random samples of size n were selected from a population with a known standard deviation. How is the standard deviation of the sampling distribution of the sample mean affected if the sample size is increased from 50 to 200?

(A) It remains the same.
(B) It is divided by two.
(C) It is divided by four.
(D) It is multiplied by two.
(E) It is multiplied by four.

Researchers believe that patients who received heart pacemakers will tend to snore less. In a study of 40 randomly selected patients with a pacemaker, 12 of them snored. Among 60 randomly selected patients without a pacemaker, 25 snored. Which one of the following statements is NOT correct?

Let p_1 = proportion of patients with pacemakers who snore

Let p_2 = proportion of patients without pacemakers who snore

(A) Appropriate hypotheses for this problem would be $H_0: p_1 = p_2$ and $H_a: p_1 < p_2$

(B) The 95% confidence interval for the difference between the proportions of those who snore in the two groups is $(-0.31, 0.07)$.

(C) Since the 95% confidence interval contains 0, there is no significant difference between the two proportions.

(D) At the 10% level, we would reject the null hypothesis and conclude that patients who received pacemakers snored less than those who did not.

(E) If a 98% confidence interval were constructed based on this data, it would also contain 0.

A group of twelve people work in a large office building. They all decide they want to lose weight by increasing their physical activity. Six of them decide to walk up and down the four flights of stairs each workday rather than taking the elevator. The other six decide to walk a half hour each day during their lunchtime. At the end of a 20-week period it was found that those who walked a half hour at lunch had lost more weight, on average, than those who walked up and down the flights of stairs. Which one of the following is a TRUE statement?

(A) This was an observational study since it was not randomly decided which person participated in which activity.

(B) This was an experiment since the participants were divided into two equal groups.

(C) This was a block design since there are two treatments involved.

(D) Since the people chose which physical activity they engaged in, nothing can be concluded about which type of physical activity is more effective in reducing weight.

(E) We can use these results to conclude that if everyone in this building were to walk a half hour at lunch each day they would achieve, on average, about the same weight loss as this group.

A survey organization conducted telephone interviews in December 2008 in which 1,009 randomly selected adults in the United States responded to the following question.

At the present time, do you think television commercials are an effective way to promote a new product?

Of the 1,009 adults surveyed, 676 responded "yes." In December 2007, 622 of 1,020 randomly selected adults in the United States had responded "yes" to the same question. Do the data provide convincing evidence that the proportion of adults in the United States who would respond "yes" to the question changed from December 2007 to December 2008 ?