Quiz 8.2A AP Statistics Name:

1. A simple random sample of 1100 males aged 12 to 17 in the United States were asked whether they played massive multiplayer online role-playing games (MMORPGs); 775 said that they did. We want to use this information to construct a 95% confidence interval to estimate the proportion of all U.S. males aged 12 to 17 who play MMORPGs.

(a) State the parameter our confidence interval will estimate.

(b) Identify the conditions that must be met to use this procedure, and explain how you know that each one has been satisfied.

(c) Find the appropriate critical value and the standard error of the sample proportion.

(d) Give the 95% confidence interval.

(e) Interpret the confidence interval constructed in part (d) in the context of the problem.

(f) Suppose you wanted to estimate the proportion of 12-to-17 year-old males who play MMORPG's with 95% confidence to within ± 2%. Calculate how large a sample you would need.

(g) If you wanted to have a margin of error of ±2% with 99% confidence, would your sample have to be larger, smaller, or the same size as the sample in part (f)? Explain.

(h) This poll was conducted through email. Explain how undercoverage could lead to a biased estimate in this case, and speculate about the direction of the bias.

Quiz 8.2B AP Statistics Name:

1. A recent poll found that "433 of the 1548 randomly-selected U.S. adults questioned felt that unemployment compensation should be extended an additional six months while the country is in its current economic downturn." We want to use this information to construct a 95% confidence interval to estimate the proportion of the U.S. adults who feel this way.

(a) State the parameter our confidence interval will estimate.

(b) Identify the conditions that must be met to use this procedure, and explain how you know that each one has been satisfied.

(c) Find the appropriate critical value and the standard error of the sample proportion.

(d) Give the 95% confidence interval.

(e) Interpret the confidence interval constructed in part (d) in the context of the problem.

(f) Suppose you wanted to estimate the proportion of people who feel that unemployment compensation should be expanded with 95% confidence to within ± 1.5%. Calculate how large a sample you would need.

(g) If you wanted to have a margin of error of ±1.5% with 99% confidence, would your sample have to be larger, smaller, or the same size as the sample in part (f)? Explain.

(h) This poll was conducted by randomly calling cell phone numbers. Explain how undercoverage could lead to a biased estimate in this case, and speculate about the direction of bias.