

AP Statistics – Unit 3 Additional Review

#1) A coed youth sports league includes 10 teams and each team includes 10 players. For advertising purposes, the organization which manages the league wants to produce a brochure which contains a picture taken by a professional photographer of a ‘typical’ team – which represents the youth league’s participants well. The photographer is tasked with selecting which players should appear in the photograph. She is considering three sampling strategies: a Simple Random Sample (SRS), a cluster sample, and a stratified random sample. The photographer has determined that she should include 20 players in the photograph she takes.

(a) Describe a process for randomly selecting the sample of 20 players if a **Simple Random Sample (SRS)** method is used. *You do not need to actually conduct the sample, but your description must be detailed enough for me to use your process to conduct the sample.*

(b) Describe a process for randomly selecting the sample of 20 players if a **cluster** sampling method is used. *You do not need to actually conduct the sample, but your description must be detailed enough for me to use your process to conduct the sample.*

(c) In your cluster sampling method from part (b)...

...how many teams contribute players to the sample for the photograph?

...for the teams which contribute players, how many players from these teams are in the sample?

(d) If a **stratified random sampling** method is used to select the players, give one example of an effective variable on which to stratify. Explain your reasoning. *You do not need to actually conduct the sample, but your description must be detailed enough for me to use your process to conduct the sample.*

(e) Describe the process you would use to randomly selecting the sample of 20 players if a **stratified random** sampling method is used, stratifying on the variable you specified in (d). *You do not need to actually conduct the sample, but your description must be detailed enough for me to use your process to conduct the sample.*

(f) In your stratified sampling method from part (e)...

...how many teams contribute players to the sample for the photograph?

...for the teams which contribute players, how many players from these teams are in the sample?

#2) One-hundred 3rd grade students have been selected to participate in an experiment to evaluate the effectiveness of a new reading curriculum compared to the existing reading curriculum.

(a) Identify the treatments, experimental units and response variable for this experiment.

Treatments:

Experimental Units:

Response variable

(b) Design the experiment to compare the effectiveness of the different reading curriculums. Be sure to explain how the groups will be randomly assigned, and include a design diagram.