These two problems are for all students regardless to which group they belong.

1 Problem

3 points
This is an ancient puzzle. It dates back to times of Charlesmagne:

Three jealous husbands with their wives must cross a river in a boat with no boatman. The boat can carry only two of them at once. How can they all cross the river so that no wife is left in the company of other men without her husband being present? Both men and women may row. All husbands are jealous in extreme. They do not trust their unaccompanied wives to be with another man, even if the other man’s wife is also present.

Solve the puzzle. Pay particular attention on the presentation of your solution. It should be clear and easy to read. Use visualization if needed.

2 Problem - A Truel Problem

3 points
Three gunmen found themselves in a truel. The first gunman, denoted by A, is an excellent marksman and hits with 90% precision. The second gunman B hits with 75% precision. The gunman C is the worst marksman of the bunch. He hits only with 30% precision. They all shoot at the same time and they do not stop till only one of them is still alive or they are dead. Assume that they have infinite number of bullets. Your task is to figure out which one of the three has the biggest chances of winning. Explain your reasoning in detail.