1. You work as a freelancer and have a pool of 10 projects to work on. For each project you know how much money you will get for completing the project. You can complete any 3 projects this month. You want to select such projects that you will get the most money by completing them. What are the safe moves in this problem? (Mark all that apply.) **1 / 1 point**

- [ ] Take the project for which you can apply the cool new technology that you've recently learned about.
- [x] Take the project with the highest payment for completion, complete it and remove it from the pool of projects.

Correct
Yes, this is a safe move. If you take the project with the highest payment for completion and then select two projects with the highest payoff from all the other projects in the pool, you will make the most money.

- [ ] Take the project which you like the most.
- [x] If there are more than 3 projects in the pool, remove the project with the lowest payment for completion, don't work on this project. In the other case, remove the first project from the pool and work on this project.

Correct
Yes, this is a safe move. If there are more than 3 projects in the pool, you won't work on the project with the lowest payment for completion, because you will only work on the 3 projects with the highest payment for completion. If there are at most 3 projects, you will work on all of them.

2. In the previous problem, what is the subproblem you need to solve after you've made a safe move? **1 / 1 point**

- (•) Choose projects with highest payment to work on from the pool of projects which now contains only 9 projects.
- ( ) Determine the order in which to work on the selected projects.
- ( ) Compute the sum of payoffs you will get when you complete the selected projects.

Correct
You've either chosen the project with the largest payment for completion, completed it and removed it from the pool or selected the project with the lowest payment for completion and removed it from the pool. The pool contained 10 projects, and now it contains only 9.

3. You need to find an integer $23 \leq x \leq 73$ with the largest product of digits. You use a greedy strategy: first, determine the largest possible first digit (tens) of x, then determine the largest possible second digit (ones) of x (among all the numbers in the range from 23 to 73 whose first digit is equal to the digit selected at the first step). Will this greedy strategy work correctly? **1 / 1 point**

- ( ) Yes.
- (•) No.

Correct
This strategy will choose number 73, because 7 is the largest first digit for numbers between 23 and 73, and 3 is the largest second digit for numbers between 23 and 73 starting with digit 7. The product of digits of this number is 21. However, the product of digits of number 69 is 54, and 69 is between 23 and 73.