

5. Wanmin Food Cart Project (45 points)

Because of Covid-19, the Wanmin Restaurant had to close down. To augment their finances, Xiangling decides to try to ride on the new trend of 'food carts', and provide food to people on the street. However, the space on her cart, unlike the Serenitea Pot, is limited and thus, she must take certain care to bring the right dishes that will give the most profit.

The three most popular dishes of the Wanmin Restaurant are the Jueyun Chili Chicken, Grilled Tiger Fish, and Jade Parcels. However, they all cost differently, both to make and to sell. (Note: mora is the currency used)

- Grilled Tiger Fish is the cheapest to make, at 100 mora per dish, but is sold for 175 mora.
- Jueyun Chili Chicken costs 150 mora per dish to make, and is sold at 250 mora.

- Jade Parcels is the most expensive to make, at 350 mora per dish, but is sold for 600 mora.

Along with the space limitation, Chef Mao also noted some considerations when preparing certain dishes and selling them:

- Xiangling has a maximum budget of 15,000 mora for everything.
- It costs Xiangling 1500 mora for Master Lu, the master carpenter of Fanmu Carpenter's, to make her cart.
- Master Lu says that her cart can only accommodate a maximum of 50 dishes. Hence, the total number of dishes Xiangling will prepare is exactly equal to 50.
- Chef Mao said Xiangling must carry a minimum of 5 dishes each, so customers will always have some variety.
- Chef Mao says that the Grilled Tiger Fish must be prepared in pairs, since one order requires half a fish. This means that whatever amount Xiangling decides to prepare, the Grilled Tiger Fish must be an even number.
- Similarly, the Jueyun Chili Chicken must be prepared in threes, since the Jueyun Chili has three buds per plant. This means that whatever amount Xiangling decides to prepare, the Jueyun Chili Chicken must be divisible by 3.
- Because the Jade Parcels take a long time to make, Chef Mao can only realistically prepare a maximum of 25 dishes of Jade Parcels.
- Because the name of the Wanmin Restaurant is famous throughout Liyue, we can assume that Xiangling will sell all of her food cart's dishes at the end of the day.

Given all these considerations, what is the optimal combination of dishes that Xiangling must prepare to maximize her profit? Print out the right combination, as well as the total profits to be earned.

NOTE: Unlike the other questions, we will not give the expected output here as this is part of your answer.

Sample output:

Grilled Tiger Fish - *<your answer>*

Jueyun Chili Chicken - *<your answer>*

Jade Parcels - *<your answer>*

Total Profit - *<your answer>*

Hints:

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- Cycle through all possible combinations of the dishes to determine the right combination, given the restrictions of each dish, and Xiangling's overall constraints
 - Xiangling need not spend the entire 15000 (her total costs can be less than 15000)