Homework 1   A Simpler Cookie

The Woos have a rather complicated problem to solve. Let's make it simpler. Finding a solution to a simpler problem may lead to a method for solving the original problem.

Assume that the Woos still make both plain and iced cookies, and that they still have 15 hours altogether for cookie preparation. But now assume that they have an unlimited amount of both cookie dough and icing, and that they have an unlimited amount of space in their oven.

The other information is unchanged.

- Preparing a dozen plain cookies requires 0.1 hours.
- Preparing a dozen iced cookies requires 0.15 hours.
- The plain cookies sell for $6.00 a dozen.
- It costs $4.50 a dozen to make plain cookies.
- The iced cookies sell for $7.00 a dozen.
- It costs $5.00 a dozen to make iced cookies.

As before, the Woos know that no matter how many of each kind they make, they will be able to sell them all.

1. Find at least five combinations of plain and iced cookies that the Woos could make without working more than 15 hours. For each combination, find their profit.

2. Find the combination of plain and iced cookies that you think would give the Woos the greatest profit. Explain why you think no other combination will yield a greater profit.