# Selected Solution Hints

## Problem Set 7

## April 2023

### Questions 15

The question states that there is a uniform abatement standard, thus both firms have to abate the same quantity. Plugging the same quantity into the total abatement cost function of each firm gives you the result.

#### Question 17

Now we look for optimal abatement. This is achieved by equalizing the marginal abatement costs of both firms.

- 1. Set  $MAC_1 = MAC_2$  and calculate the abatement for each firm. This provides you with a different quantity  $A_i$  for each firm.
- 2. Plug these quantities  $A_i$  back into the respective  $TAC_i$  function and take the difference with the overall costs obtained in Q7.

#### Question 18

In order to achieve this solution with one price, one has to set MAC = p. Plugging each firms abatement  $A_i$  from Q9 into their respective marginal abatement cost function  $MAC_i$  gives you the price p.