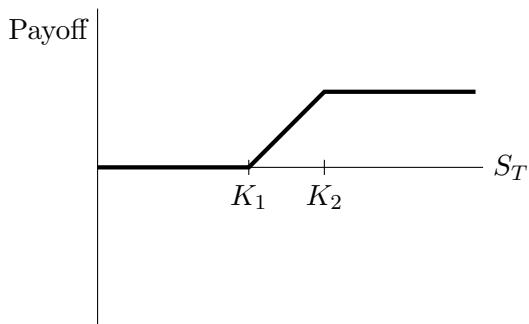


# MATH 456, HOMEWORK 1

DUE SEPTEMBER 4, 2015

For each of the following payoff graphs, describe a combination of options (long puts, long calls, short puts, short calls) that reproduces it.

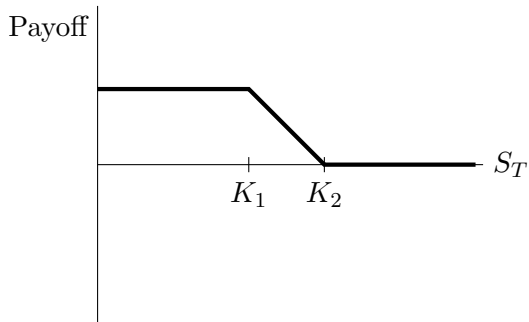
**Example.**



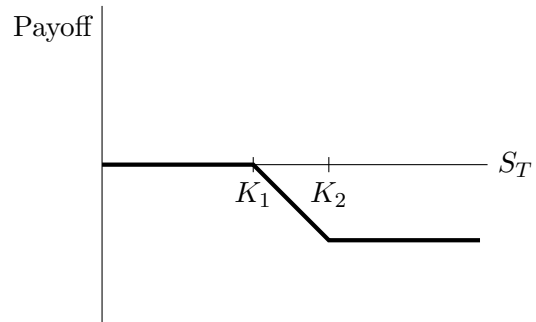
**Solution.**

Long call struck at  $K_1$ , short call struck at  $K_2$ .

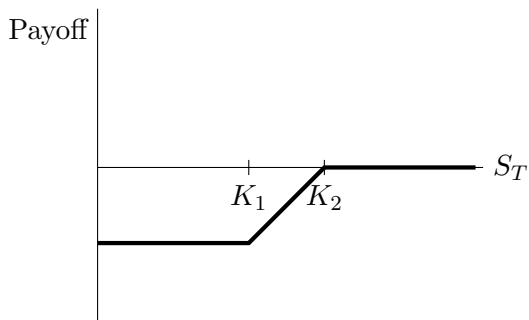
**Exercise 1.**



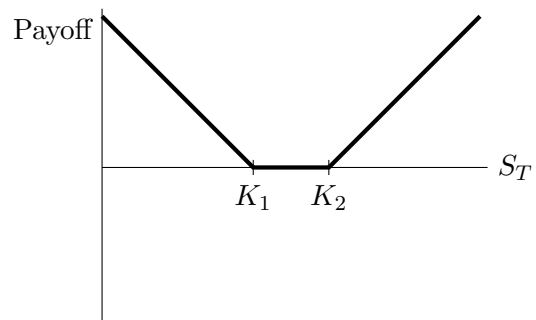
**Exercise 2.**



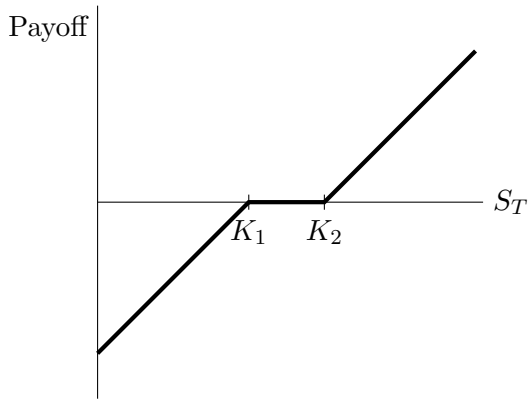
**Exercise 3.**



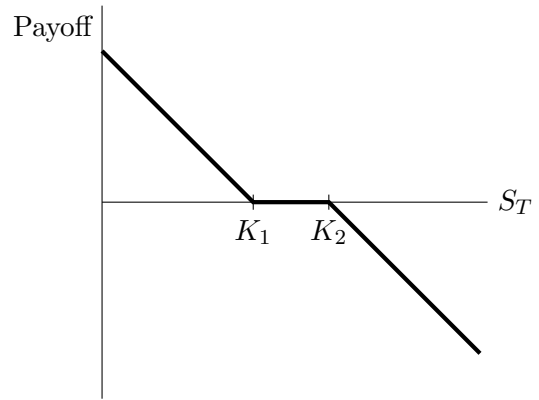
**Exercise 4.**



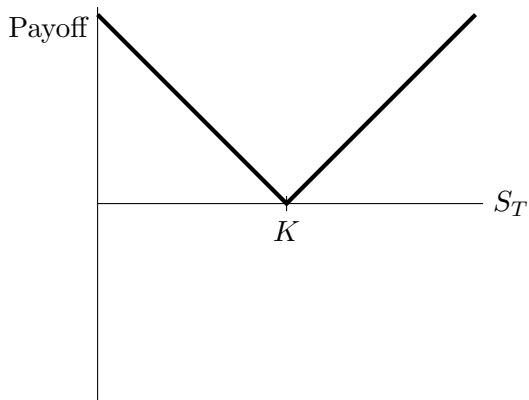
**Exercise 5.**



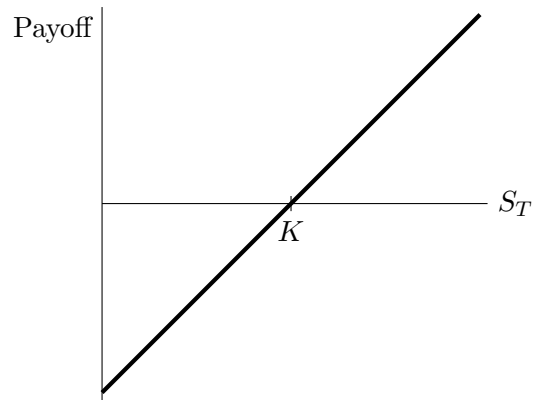
**Exercise 6.**



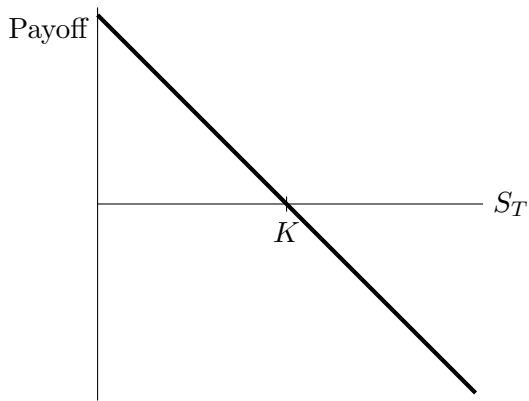
**Exercise 7.**



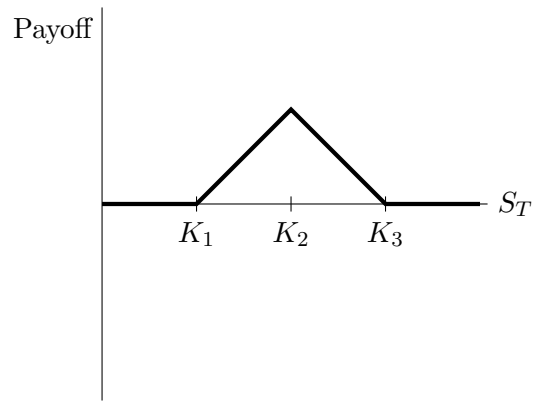
**Exercise 8.**



**Exercise 9.**



**Exercise 10.**



**Bonus Exercise.** There are two different solutions to Exercise 10. In addition to your original answer, find the second solution.