Exercise 1:
An investor sells a European call on a share for $4. The stock price is $47 and the exercise price is $50. When does the investor make a profit? When will the option be exercised? Draw a diagram showing the investor’s profit against the price of the stock at expiration.

Exercise 2:
An investor buys a European put on a share for $3. The stock price is $42 and the exercise price is $40. When does the investor make a profit? When will the option be exercised? Draw a diagram showing the investor’s profit against the price of the stock at expiration.

Exercise 3:
You want to purchase 2 puts and 1 call. The call option costs $5 and the put option costs $6. The exercise price for the call or the put is $50. Plot the profit against the stock price at the expiration date:

a. For the 2 puts.
b. For the call.
c. For the combination of the 2 puts and 1 call.

Exercise 4:
Consider the following strategy: You write 2 call options (each one with \( E = $45 \), \( C = $5 \)) and you buy 1 call option (with \( E = $40 \), \( C = $8 \)). Both buying and selling call options have the same expiration date. Plot the profit against the stock price at the expiration date for this strategy.

Exercise 5:
Consider the box spread strategy: It is a combination of a bull call spread and a bear put spread.

Bull call spread: Buy one call with exercise \( E_1 = $50 \) and sell one call with exercise \( E_2 = $60 \).
Bear put spread: Buy one put with exercise \( E_2 = $60 \) and sell one put with exercise \( E_1 = $50 \).

a. Complete the table that shows the payoffs for all the positions above.
b. Construct the diagram that shows the payoff for the bull call spread, for the bear put spread, and the total (box spread).