Names:

I.   Bert, Ernie and Grover have won a ride in a rocket, but only one of them will get to ride. They decide to give the ride to the highest bidder, and that whoever takes the ride should compensate the others equitably. Bert thinks the ride is worth $900; Ernie bids $630, and Grover (who is a little bit afraid of heights) bids $270.

    1. Find the **fair shares** for each person.

    2. **Who** could possibly get the ride if we require a **fair** settlement? Explain briefly. (Hint: begin by computing the average of the bids.)

    3. Give *any* example of an **envy-free** settlement. (Hint: find the range of possible payments, and then pick one.)

II. Kermit and Miss Piggy are getting a divorce! They have several assets to divide which they can't agree on, and decide to use the **Adjusted Winner method** to divide them fairly. Show the steps and give the final settlement.

		Kermit	Piggy
A.	framed artwork	15	20
B.	Rolls Royce	30	10
C.	NY apartment	45	30
D.	Paris apartment	10	40

III. James Bond, Moneypenny, M, and Q have to divide a collection including a poisoned pen, a magnetic-resistant watch, and an underwater jet-pack. They each value the items as shown.

Here is the settlement they come up with:

	Bond	Moneypenney	M	Q
pen	100	300	400	500
watch	500	500	400	600
jet-pack	900	100	200	800
Total				
Fair share				

Suppose that Bond takes the jet-pack and pays $500, M takes the pen and receives $100, Q takes the watch and pays $200, and Moneypenney receives $600.

1. Find x_{Bond}, $x_{Moneypenney}$, x_M and x_Q.

2. Is this settlement **fair**? Explain.

3. How much is Bond's settlement worth to Q? Does Q envy Bond?

4. Compute the XB ratios for Bond and for M.

IV.   More practice
   a. For problem I (Bert, Ernie and Grover), find a settlement that is **equitable**. (Hint: use
      the equitability method). Show steps clearly.

   b. For problem I part 3 (your envy-free settlement), how would you *justify* that your
      settlement is envy-free? (Explain the process.)

   c. For problem I part 3, is your envy-free settlement also **equitable**? Explain why or
      why not. Include calculations.

   d. For problem III (James Bond, Moneypenny, M, and Q), find a settlement using
      Knaster's method. Use your own paper to work out the calculations; give just the
      final settlement here: