MATH 1340, HOMEWORK #11

Please *show your work* in the problems that require calculations. For the short answer questions, write in complete sentences. All assertions must be justified to get full credit.

0. (For participation credit.) Answer the response question on Piazza. This time, please submit your own response *or* respond to a classmate's answer.

1. Suppose that 18 cookies (6 chocolate chip, 6 peanut butter, and 6 sugar) are to be divided among three friends: Xander, Yolanda, and Zack. Xander is allergic to chocolate, so the chocolate chip cookies are worthless to him, but he likes peanut butter and sugar cookies equally. Yolanda cannot stand peanut and so will not eat a single peanut butter cookie, but likes chocolate chip and sugar cookies equally. Zack likes chocolate chip and peanut butter equally, but doesn't like sugar cookies at all (too plain). Give examples of allocations of all 18 cookies to the three people that are: (and say why the properties are satisfied)
   (a) envy-free but not equitable.
   (b) equitable but not proportional nor envy-free.
   (c) proportional and equitable but not envy-free.
   (d) proportional but not envy-free nor equitable.

2. [TP 5.7]

3. [TP 5.11]

4. [TP 5.14]

5. [TP 5.15]

6. [TP 5.16]