

Name _____

(circle your lab section)

- ▷ **AB1**, Fri 11:00-12:40, Brian Benson
- ▷ **AB2**, Thu 3:00-4:40, Jennifer Weber
- ▷ **AB3**, Thu 1:00-2:40, Brian Benson
- ▷ **AB4**, Fri 1:00-2:40, Jennifer Weber

- You may work with other students in this class. However each student should write up solutions separately and independently – nobody should copy someone else’s work.
- Be sure that your work is neat and that sufficient work is shown to justify each answer.
- Use this page as a cover sheet and staple all of your work together. Use additional pages where necessary.
- This is due at the beginning of lecture on Tuesday, February 2nd.

1. (2 points) The first seven terms $a_1, a_2, a_3, a_4, a_5, a_6, a_7$ are shown for six different sequences. Precisely one of these sequences is a geometric sequence. Determine which sequence is geometric and find a formula for the n th term a_n in that sequence.

(a) 1, 3, 5, 7, 9, 11, 13, ...

(b) 1, 1, 2, 3, 5, 8, 13, ...

(c) 1, 3, 6, 10, 15, 21, 28, ...

(d) 2, 10, 50, 250, 1250, 6250, 31250, ...

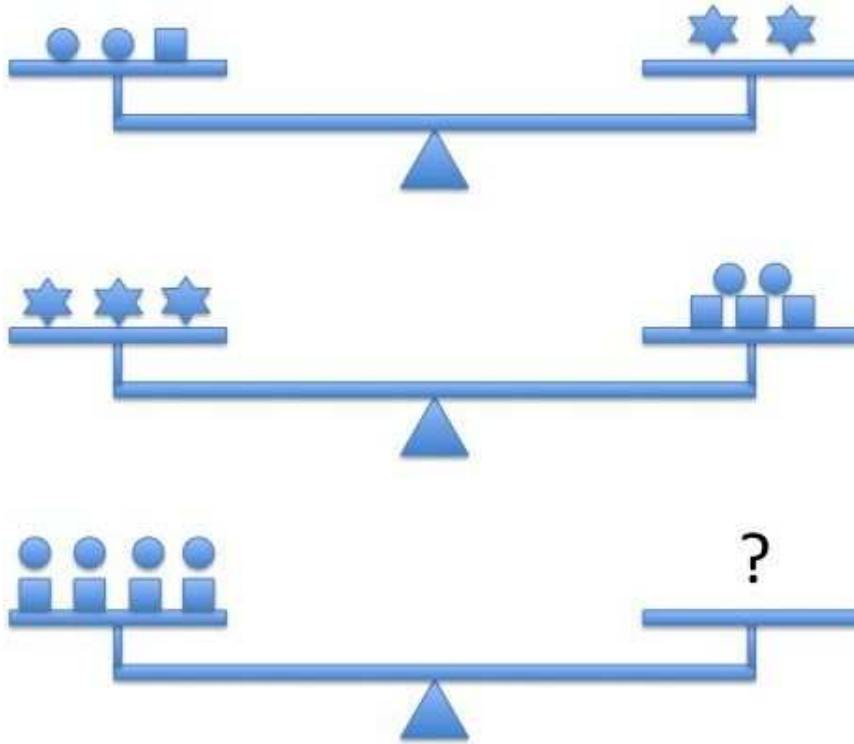
(e) 1, 22, 333, 4444, 55555, 666666, 7777777, ...

(f) 2, 6, 10, 14, 18, 22, 26, ...

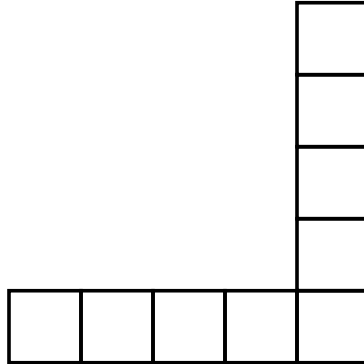
2. (2 points) Find the following sum of the first 200 multiples of 4 without resorting to doing each addition separately. You should also not use a calculator or computer.

$$4 + 8 + 12 + 16 + 20 + 24 + \cdots + 792 + 796 + 800$$

3. (2 points) The first two scales below are in perfect balance. How many stars will be needed on the right side of the bottom scale so that it will also be in perfect balance? You may assume that each square weighs the same as every other square, each circle weighs the same as every other circle, and each star weighs the same as every other star.



4. (2 points) Each of the 9 squares shown is to contain one number chosen from 1, 2, 3, 4, 5, 6, 7, 8, and 9. No number is to be repeated. Suppose the sum of the 5 squares aligned vertically is 32 and that the sum of the 5 squares aligned horizontally is 20. What number goes in the shared corner square?



5. (2 points) Create your own number trick according to the instructions discussed in lab.