

REMINDER: I expect that you will have found a topic for your term paper by the end of September.

(1) Do these addition problems. (Pictures might help!)

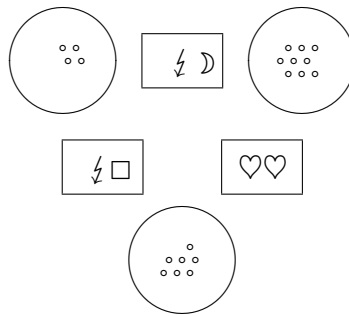
(a) $\star\Delta + \frac{1}{2}\square$

(b) $\Delta D + \heartsuit\square$

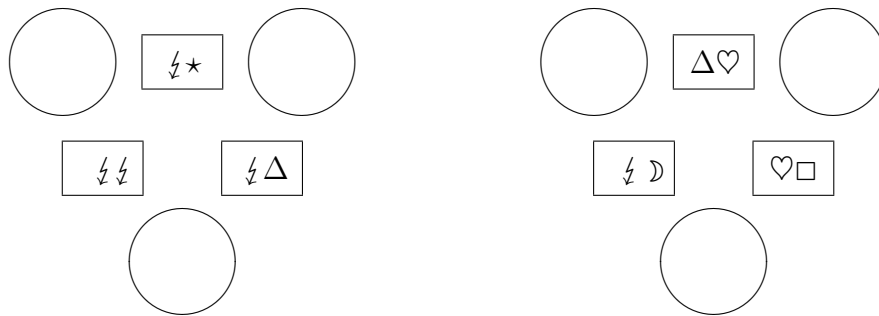
(c) $\square\star + \Delta\Delta$

(d) $\star\heartsuit + \square\frac{1}{2}$

(2) Happy people, in their spare time, like to put M&M's in circles and write the number of M&M's in both circles on a card between them. Below is an example:



Unfortunately, a happy person ate all the M&M's in the circles below. Reconstruct how many M&M's were in each circle.



(3) Write down clearly two real-life math questions requiring the addition $23 + 17$ to solve them. Make them as different from one another as possible and include answers (if appropriate with correct units). For one of your examples, illustrate how you could use the real-life situation to explain to your students the steps needed to add 23 and 17.

(4) Write an essay reflecting on your learning happy numbers. Mention some things that are hard about the process, and what they suggest about kids' learning of our Arabic numerals.