

- (1) For each of the following, write the happy number that comes before and after.

$$\begin{array}{cc} \underline{\hspace{2cm}}, \frac{1}{2} D, \underline{\hspace{2cm}} & \underline{\hspace{2cm}}, \Delta \heartsuit *, \underline{\hspace{2cm}} \\ \underline{\hspace{2cm}}, D D, \underline{\hspace{2cm}} & \underline{\hspace{2cm}}, \frac{1}{2} \frac{1}{2} \odot \odot, \underline{\hspace{2cm}} \end{array}$$

Translate the following Arabic numbers to happy numbers, and happy numbers to Arabic.

$$\begin{array}{ccc} 34 = \underline{\hspace{2cm}} & 47 = \underline{\hspace{2cm}} & 77 = \underline{\hspace{2cm}} \\ \Delta \square = \underline{\hspace{2cm}} & \frac{1}{2} \odot \Delta = \underline{\hspace{2cm}} & D D = \underline{\hspace{2cm}} \end{array}$$

- (2) Suppose there are 100 million TV viewers in the US. According to a poll, 20 million people watch NCIS. 13 million people watch BONES, but don't watch NCIS. There are 25 million people who watch either NCIS or BONES (but not both).
- How many people watch both shows, NCIS and BONES?
 - How many people don't watch either show?
 - Draw a diagram resembling the attribute circles that represents the viewers of each show. Write an English sentence describing each piece of the picture in terms of the viewers.
- (3) A rock festival was attended by 60,000 youngsters; 37,000 boys; 30,000 barefooted; 16,000 barefoot boys; 26,000 listening to the music; 7,000 barefoot listeners; 17,000 boys listening; and 8,000 barefoot girls not listening. How many girls were there who wore shoes but weren't listening?
- (4) Write an essay expanding on your negative experiences in your math classes. Describe one or two such experiences in detail. What made them negative? What did you do, and what did the teacher do to make them negative experiences? How can you use this experience in *your* future teaching?