ChooChoo
Input File: ChooChoo.txt

Your math professor, Barbara, has retired from teaching to become a professional golfer. Until she establishes herself on the LPGA tour, she travels by train to the tournament sites each week. Unfortunately, she has missed several tee times because her six-digit train number was misread by the traffic controllers, and her train was routed to the wrong destination. To remedy this situation, she has proposed that a seventh digit be added to the train number so that the traffic control computer can verify that the traffic controller has properly entered the train number into the computer.

To verify the train number the computer adds the first, third, fifth and seventh digits. Then it adds the remaining digits, and doubles their sum. Finally, the two sums are added together. If the result is an even multiple of 7, there is a high probability the train number was typed properly and Professor Barbara will make her tee time.

Write a program to verify that a train number was properly entered into the traffic control computer.

Inputs
The first line will contain the number of trains whose numbers are to be verified, n. This will be followed by n lines of input, one seven digit train number per line.

Outputs
For each train number to be verified there will be one line of output containing two items separated by one space. The first item on the line will be the seven digit train number. This will be followed by the words “valid” or “invalid” depending on the result of the verification algorithm.

Sample inputs
4
153-524-8
134-824-3
143-924-0
127-323-2

Sample output
153-524-8 valid
134-824-3 invalid
143-924-0 invalid
127-323-2 valid