Good sequences revisited

[Award] **10 pts**

[Category] **Programming**

Let *F*(*N*, *M*, *R*, *D*) be the number of good sequences which meet the following condition:

(1) The sequence has *N* elements

(2) The maximum element in the sequence is equal to *M*

(3) The sequence contains *R* records

(4) Each number occurs no more than *D* times in the sequence

The good sequence and records are the same definition in [Problem 474](http://www.javaist.com/rosecode/show.php?no=474).

For example, *F*(4, 2, 2, 2) is 3. Only three sequences {1, 1, 2, 2}, {1, 2, 1, 2}, {1, 2, 2, 1} meet the conditions:

(1) 4 elements

(2) Maximum element = 2

(3) 2 records

(4) Each number occurs no more than 2 times

Notice {1, 2, 1, 1} is not in *F*(4, 2, 2, 2) because number 1 occurs 3 times; {2, 1, 2, 2} is not in *F*(4, 2, 2, 2) because it contains only 1 record and number 2 occurs 3 times; {2, 3, 1, 2} is not in *F*(4, 2, 2, 2) because the maximum element is 3.

You are given *F*(11, 8, 3, 2) = 394581 and *F*(20, 13, 7, 4) mod 1000000007 = 342894563.

Find F(80, 47, 13, 10) mod 1000000007.

Thanks to **C\_K\_Yang** for the idea.

[Answer] **299047832**