

Problem 6

Show that in the sequence $7, 77, 777, 7777, \dots$ there is a number that is divisible by 2017.

As always, show your work, fully explain and justify your answer. A solution mainly obtained by computers or calculators will not be accepted.

Posting Date 3/30/2018. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 (e-mail or hard-copy, but hard copy submissions must include a time stamp) by 11:59 pm on 4/12/18.