

a) Prove that for any prime number q , other than 2, 3 and 5, there is a natural number k such that $11\dots1$ is a multiple of q .

k -times

b) Starting from this, can we prove that any rational positive number can be written in a following manner $\overline{a_1\dots a_n}, b_1\dots b_m (c_1\dots c_p)$? This means that any rational positive number has a finite decimal representation or it has a periodical or periodical mixt representation