**Problem 71**

04 June 2004

Consider the fraction, *n/d*, where *n* and *d* are positive integers. If *n*<*d* and HCF(*n,d*)=1, it is called a reduced proper fraction.

If we list the set of reduced proper fractions for *d* ≤ 8 in ascending order of size, we get:

1/8, 1/7, 1/6, 1/5, 1/4, 2/7, 1/3, 3/8, **2/5**, 3/7, 1/2, 4/7, 3/5, 5/8, 2/3, 5/7, 3/4, 4/5, 5/6, 6/7, 7/8

It can be seen that 2/5 is the fraction immediately to the left of 3/7.

By listing the set of reduced proper fractions for *d* ≤ 1,000,000 in ascending order of size, find the numerator of the fraction immediately to the left of 3/7.