PROBLEM # 669

Posted on:3 March
Due on:17 March

POTW wishes all problem solvers a very happy spring break. This week's problem is due back after the break.

Consider 999 consecutive perfect cubes starting with 2^3:

$$2^3 = 8, 3^3 = 27, 4^3 = 64, 5^3 = 125, \cdots 1000^3 = 10000000000.$$

Form a fraction, whose numerator is the product of the numbers which are one less than these cubes, i.e.,

$$7 \cdot 26 \cdot 63 \cdot 124 \cdot \cdots \cdot 999999999,$$

and the denominator is the product of the numbers which are one more than these cubes, i.e.,

$$9 \cdot 28 \cdot 65 \cdot 126 \cdot \cdots \cdot 1000000001.$$

Reduce this fraction to its lowest terms.

The problem of the week can be found online at

http://potw.mth.cmich.edu/

Solutions can be mailed to

chakr2d@cmich.edu

with subject line "POTW 669"