Problems of the Month

February 2016

General Problem:

A student is trying to determine his course schedule. How many different course schedules does he have, given the following information?

- He will take a biology class. There are 4 open sections.
- He will take a math class. There are 5 open sections.
- He will take an English class. There are 3 open sections.
- He will take a geology class. There are 2 open sections.

Calculus Problem:

A real function can typically be written as $y = f(x)$. Today we have one such function, except we don't know what it is. All we know is that $f'(x) = x^2 y$ and one particular value, that $f(3) = 7$. Find an explicit equation for $f(x)$ in terms of the variable x.

Challenge Problem:

Find the five-digit expression worth 55 points given that the expressions 34567, 13579, 42160 and 33515 are worth 2, 13, 1, and 33 points respectively. Here, 10 points are awarded for each correctly placed digit, and one additional point for each digit that would be correctly placed when the expression is rearranged optimally.