

## April 2009

Solutions will be provided next month.

1) A positive integer less than 1000 is chosen at random. What is the probability it is a multiple of 7, but a multiple of neither 3 nor 14?

2) The sum of the absolute values of all solutions of the equation  $|x^3 + 4x^2 - 12x - 44| = x^2 + 4x + 4$  can be written in the form  $a + b\sqrt{c}$ ,  $c$  a prime. Find  $a + b + c$ .