1086-11-2562 **Vipin S Menon** and **Ryan Paul Lawrence***, 3612 Dover Street, Lake Charles, LA 70607, and **Robert L Doucette**. *An exploration of the primality properties of Primitive Pythagorean Triplets.*

Prime numbers are a very essential part of cryptographic systems in computer security. Primitive Pythagorean triplets (PPTs) have been of interest to mathematicians for a long time. Our work explores the primality of the three numbers that make up a primitive pythagorean triplet, and investigates many such triplets of numbers. By writing a computer program in C for the same, we conduct a systematic study of the relative frequencies of 0-p, 1-p, 2-p and 3-p PPTs; where 0-p indicates the triplet has zero primes as in <21,220,221>, 1-p indicates that the triplet has one prime number, as in <7,24,25>, and 2-p indicates that the pythagorean triplet has two prime numbers as in <3,4,5> . Our simulations indicate that there do not exist any 3-p PPTs (as is only to be expected). What we did not realize before the program ran was how the relative frequencies of the 0-p, 1-p, and 2-p PPTs would pan out. Preliminary results indicate that the 1-p PPTs are the dominant ones, because they are far more prevalent than the 0-p PPTs and the much less frequently seen 2-p PPTs. Our goals at the outset were to perform a number theoretic study of the topic, and an investigation to see if the observed pattern (observed by the computer simulation) could be backed up by results from Number Theory. (Received September 25, 2012)