## Principles of Prime and Composite Numbers

1. True or False:  In Eratosthenes' sieve there is no need to cross out multiples of composite numbers. Explain your reasoning.

2. The numbers from 2-1000:
   A. In a listing of the numbers from 2 – 1000, how many numbers are crossed out in step 1 (crossing out all of the multiples of 2 that are greater than 2)?

   B. How many new numbers are crossed in step 2 (crossing out all of the multiples of 3 that are greater than 3)? Explain your reasoning.

3. Finding greatest number of factors:
   A. For numbers less than 50, which number has the most factors in its prime factorization?

   B. Is there more than one answer?

   C. What would be the next number with the same amount of factors in its prime factorization?