



TULSA GIRLS'  
MATH CIRCLE

## Number Theory Questions I

Divisibility warm-ups:

1. Find the largest integer less than 40 that leaves a remainder of 2 when divided by 7.
2. Find the greatest three-digit number that leaves a remainder of 4 when divided by 11.
3. A grocer puts 18 apples in  $n$  bags such that each bag contains the same number of apples. If there is more than one apple in each bag and fewer than 18, what are the possible values of  $n$ ?
4. The 120 teachers in your school district are having a meeting at which they are to be separated into equal-sized groups having at least three but no more than 12 to a group. How many different group sizes are possible?

Now, let's find the primes less than 200 using the Sieve of Eratosthenes!