MATH 5: HANDOUT 1
REVIEW I

<small>REVIEW TOPICS</small>

- Arithmetic sums.
- Division with remainder. Divisibility tests by 2, 3, 4, 5, 6, 9. Divisors (factors), multiples.
- Prime and composite numbers. Prime factorization. Euclid's theorem.
- LCM, GCD. Finding by listing of all divisors.
- Finding GCD and LCM using prime factorization.

<small>PROBLEMS (IN CLASS)</small>

1. Is the number 12345 divisible by 3? by 9? by 5? by 10?

2. Find a prime factorization of 204.

3. A package of plastic forks contains 16 forks. A package of plastic knives contains 12 knives. What is the smallest number of packages of each kind you have to buy to get exactly the same number of forks as knives?

4. Find LCM and GCD of 365 and 30.

5. Two bells ring together at 10:45 a.m. One bell rings every 9 minutes and the other every 12 minutes. When will they next ring together?

6. Your ceiling fan is going, somebody pulls the cord once, and you want to return it to the original setting, but you don't know if it is a 2-setting or a 3-setting fan. What is the smallest number of times you need to pull to be sure the fan is back in its original setting? Is there a way to do this if the fan might be 4-setting? Any number?

7. If it is 7am now, what time of the day will it be in 27 hours? 127 hours? 11043 hours?

8. Compute $\frac{14}{7} + \frac{45}{11}$, $\frac{7}{10} - \frac{1}{2}$.

9. Compare $\frac{11}{6}$ and $\frac{7}{4}$.

10. Mrs. Weatherby baked 175 cookies for a party. The children ate $\frac{4}{7}$ of the cookies. The adults ate 48 cookies. How many cookies were left?

Homework problems on back

1. Find the following sums (without using a calculator):

$$1 + 2 + 3 + \cdots + 49$$
$$1 + 3 + 5 + \cdots + 49$$
$$20 - 19 + 18 - 17 + \cdots - 3 + 2 - 1$$
$$21 + 20 + 21 + 24 + 19 + 26$$
$$7 \times 19 + 7 \times 11$$

Try to do it in the most efficient way.

2. Consider the product of all numbers from 1 to 25: $1 \times 2 \times \cdots \times 24 \times 25$. How many 3s will there be in the prime factorization for this number?

3. Compute

(a) $\dfrac{3}{14} \div \dfrac{7}{9}$ (b) $\dfrac{12}{33} \div \dfrac{55}{56}$ (c) $\dfrac{3}{14} \times \dfrac{7}{9}$ (d) $\dfrac{12}{33} \times \dfrac{55}{56}$

4. There are 4 short stories in the book. The first story is 12 pages long, which is $\frac{2}{3}$ of the second story. The third story is $\frac{5}{6}$ of the length of the first two stories together. How long is the fourth story, if four stories together occupy 64 pages in the book?