Lesson 5   Prime and Composite Numbers

Divisor: A divisor is something such that when a given number is divided by it, the quotient is an integer

- ➔ 5 is a divisor of 10
- ➔ 7 is not a divisor of 10
- ➔ 1 is a divisor of 10
- ➔ What are the divisors of 10?
    - ◆ 1, 2, 5, 10

Factor: a factor is the same thing as a divisor

- ➔ Find all factors of 20

Here are some good terms to know regarding numbers:

Prime numbers: numbers with only two factors, 1 and itself

- ➔ 1 is not prime
- ➔ Is 2 prime?
- ➔ 3?
- ➔ 4?
- ➔ 5?

Composite numbers: numbers with more than two factors

Integers: any whole number that is not 0

Prime factorization: writing a number as a product of primes only
- ➔ What is the prime factorization of 30?

Guided Practice

1. Jon teaches a fourth-grade class at an elementary school where class sizes are always at least 20 students and at most 28. One day Jon decides that he wants to arrange the students in their desks in a rectangular grid with no gaps. Unfortunately for Jon, he discovers that doing so could only result in one straight line of desks. How many students does Jon have in his class?
2. What is the largest two-digit prime number whose digits are also each prime?
3. How many primes less than 100 have 7 as the ones digit?

Number Theory 1

4. What is the least prime number that is a divisor N? $N = (13 \times 17) + (19 \times 23)$
5. The digits of a four-digit number are 1, 3, 6, 9, but not necessarily in that order. The thousands digit is prime. The hundreds digit is 3 more than the tens digit. What is the number?

Homework

1. A prime number is a counting number with exactly two factors, the number itself and the number 1. In the sequence 2, 5, 11, 23... each number is obtained by doubling the previous number and adding 1. What is the first number in the sequence that is not a prime number?
2. Supposed a "twinner" is a number that is both 1 more than a prime number and 1 less than another prime number. For example, 30 is a twinner because 29 and 31 are both prime numbers. What is the sum of the three least twinners?
3. What is the least prime number that is the sum of 3 different prime numbers?
4. In simplest form, the fraction $\frac{60}{N}$ represents a whole number. N is also a whole number. What is the total number of different values that N can be?
5. The sum of two prime numbers is 85. What is the product of these two prime numbers?