Base b

1. Convert the following into base 10.

   (a) 7016_8

   (b) $2AE0B_{16}$

   (c) 11111_2

2. Convert 12345 into base 8.

3. Write down an algorithm that will convert denial numbers into base 8.

Check your answers to questions 1 & 2 by consulting §4.2 example 2, 3, 4 & #3a.

Definition 1. *An integer p greater than* 1 *is called* prime *if the only positive factors of p are 1 and p. A positive integer that is greater than 1 and is not prime is called* composite.

Theorem 1. *The Fundamental Theorem of Arithmetic: Every integer greater than 1 can be written uniquely as a prime of as the product of two or more primes where the prime factors are written in order of nondecreasing size.*

4. Find the prime factorization of 7007