

ELEMENTS OF ARITHMETIC

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FUNDAMENTAL PROCESSES

NOTATION AND NUMERATION

INTRODUCTION

1. Necessity for Calculations.—The worker in almost any branch of industry frequently meets with problems that require figuring. For example, the engineer may wish to figure the horsepower of an engine or the pressure that may be carried safely in a steam boiler. The blacksmith may have to find how long a piece of straight bar must be cut off, so that, when it is bent, it will form a ring of a certain size. The patternmaker may wish to know how to set his dividers so that they will space off a certain number of equal divisions on a circle. The foundryman may need to know the amount of metal required to pour a casting whose dimensions are given on a drawing, and so on in many other occupations. In each of these cases it is necessary to make calculations in order to obtain the desired information. Sometimes the calculations are short and simple, and at other times they are long and difficult.

2. Use of Arithmetic.—Before calculations of any kind can be made, something must be known about figures and numbers, because all calculations bring figures and numbers into use. The study of numbers, or the art of reckoning, is commonly called **arithmetic**. Thus, the various calculations that may be made really depend on an understanding of

