

# CHAPTER III.

## Simple Brackets. Addition.

**20.** When a number of Arithmetical quantities are connected together by the signs  $+$  and  $-$ , the value of the result is the same in whatever order the terms are taken. This also holds in the case of Algebraical quantities.

Thus  $a - b + c$  is equivalent to  $a + c - b$ , for in the first of the two expressions  $b$  is taken from  $a$ , and  $c$  added to the result; in the second  $c$  is added to  $a$ , and  $b$  taken from the result. Similar reasoning applies to all Algebraical expressions. Hence we may write the terms of an expression in any order we please.

Thus it appears that the expression  $a - b$  may be written in the equivalent form  $-b + a$ .

To illustrate this we may suppose, as in Art. 18, that  $a$  represents a gain of  $a$  pounds, and  $-b$  a loss of  $b$  pounds: it is clearly immaterial whether the gain precedes the loss, or the loss precedes the gain.

**21.** A bracket ( ) indicates that the terms enclosed within it are to be considered as one quantity. The full use of brackets will be considered in Chap. VII.; here we shall deal only with the simpler cases.

$8 + (13 + 5)$  means that 13 and 5 are to be added and their sum added to 8. It is clear that 13 and 5 may be added separately or together without altering the result.

Thus

$$8 + (13 + 5) = 8 + 13 + 5 = 26.$$

Similarly  $a + (b + c)$  means that the sum of  $b$  and  $c$  is to be added to  $a$ .

Thus

$$a + (b + c) = a + b + c.$$