Properties of Addition

Use with Section 1.2

Addition Property of 0

The sum of 0 and any number is that number.

For example,

5 + 0 = 5 0 + 3 = 3 0 + 7 = 7

a + 0 = a 0 + b = b 2 + 0 = 2

Commutative Property of Addition

Changing the order of numbers in a sum does not change the result.

For example,

(a) 3 + 4 = 7 4 + 3 = 7 3 + 4 = 4 +3

(b) 5 + 7 = 12 7 + 5 = 12 7 + 5 = 12

Example 1.

Rewrite each of the following using the Commutative Property of Addition.

(a) 2 + 6 (b) 5 + n (c) (5 + 1) + 4 (d) (2 + 3) + 4

Solution:

(a) 2 + 6 = 6 + 2

(b) 5 + n = n + 5

(c) (5 +1) + 4 = 4 + (5 + 1)

(d) 4 + (2 + 3) = (2 + 3) + 4

Associative Property of Addition

Changing the grouping of numbers in a sum does not change the result.

For example,

(a) 2 + (3 + 4) = 2 + 7 = 9

(2 + 3) + 4 = 5 + 4 = 9

2 + (3 + 4) = (2 + 3) + 4

a + (b + c) = (a + b) + c

(b) (5 + 6) + 1 = 11 + 1 = 12

5 + (6 + 1) = 5 + 7 = 12

(5 + 6) + 1 = 5 + (6 + 1)

(a + b) + c = a + (b + c)

Example 2:

Use the Associative Property of Addition to rewrite each sum.

(a) 4 + (5 + 6) (b) (1 + 2) + 3

Solution:

(a) 4 + (5 + 6) = (4 + 5) + 6

(b) (1 + 2) + 3 = 1 + (2 + 3)