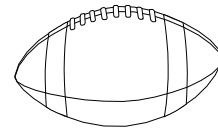


# The Game of Algebra



Do you remember what we have studied so far?

Rule #1: Substitution → If  $a = b$ , then \_\_\_\_\_

Equipment: Algebraic term = the \_\_\_\_\_ of a \_\_\_\_\_ and \_\_\_\_\_

## Rule #2: The Distributive Law

### In English:

If you need to multiply any number/variable ( $a$ ) times a whole bunch of other numbers/variables, there are two ways you can write the calculation...

### As a PRODUCT:

1. Add all the other numbers together.
2. MULTIPLY  $a$  times that answer.

### As a SUM:

1. Multiply  $a$  times each of the other numbers, individually, one after the other.
2. ADD all those answers together.

### In algebra:

Product ↔ Sum

$$a(b + c + d) = ab + ac + ad$$

You have done this for years in arithmetic, whenever you multiply large numbers:

$$137 \times 6 = (7 \times 6) + (30 \times 6) + (100 \times 6)$$

Now you need to practice doing it with algebraic terms. You need to do it over and over again, until it becomes automatic. This is one of the foundation stones of algebra—so make your foundation FIRM !

### Practice going from PRODUCT to SUM:

$$x(5y + 8z) =$$

$$2a(b - 7c) =$$

### Practice going from SUM to PRODUCT:

$$5xy + 9x =$$

$$15mn - 5mp =$$

### Beware the NASTY NEGATIVES:

$$r - (s - 2t) =$$

## Vital Vocabulary

**Remove the brackets** = turn the *product* into a *sum*.

**Extract common factors** = turn the *sum* into a *product*.