Properties of Multiplication

Multiplcation Property of 0:

Any number multiplied by 0 equals 0

$a \cdot 0 = 0$ and $0 \cdot a = 0$, where a is any number

Examples:
$5 \cdot 0 = 0$ $0(8) = 0$
$0 \times 6 = 0$ $4(0) = 0$

Multiplcation Property of 1:

Any number multiplied by 1 equals the same number

$a \cdot 1 = a$ and $1 \cdot a = a$, where a is any number

Examples:
$5 \cdot 1 = 5$ $1(8) = 8$
$1 \times 6 = 6$ $4(1) = 4$

Commutative Property of Multiplcation:

THINK
change order

The order of the numbers multiplied does not matter

$a \cdot b = b \cdot a$ where a and b are any numbers

Examples:
$5 \cdot 4 = 4 \cdot 5$ $9(8) = 8(9)$
$7 \times 6 = 6 \times 7$ $4(2) = 2(4)$

"commute" means to "exchange" OR to "change places"

Associative Property of Multiplcation:

THINK
change grouping

The grouping of the numbers multiplied does not matter

$a \cdot (b \cdot c) = (a \cdot b) \cdot c$ where a,b and c are any numbers

Examples:
$5 \cdot (4 \cdot 7) = (5 \cdot 4) \cdot 7$
$7 \times (6 \times 2) = (7 \times 6) \times 2$

"associate" means to "connect" OR to "group"

Distributive Property:

THINK
distrubute

The grouping of the numbers multiplied does not matter

$a \cdot (b + c) = a \cdot b + a \cdot c$ where a,b and c are any numbers

Examples:
$5 \cdot (4 + 7) = 5 \cdot 4 + 5 \cdot 7$
$7 \times (6 + 2) = 7 \times 6 + 7 \times 2$