Issues with Integers? Self-Help Guide!
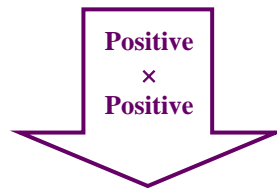
Multiplying Integers

Multiplication is a short-cut for repeated addition. To calculate $(-3) + (-3) + (-3) + (-3)$, note that the number -3 is added 4 times. In other words, multiply -3 times 4 as shown in the next example. Recall that positive numbers are designated with black chips or circles and negative numbers are designated with red chips or circles.

Example #15: $(-3)(4) = -12$

$(-3)(4)$ means **(-3) times 4** or **(-3) 4 times**

-3 once -3 twice   3rd time   4th time

(-3) 4 times

**Negative
×
Positive**

**Positive
×
Positive**

Example #16: $(3)(4) = 12$

$(3)(4)$ means **(3) times 4** or **(3) 4 times**

3 once   3 twice   3rd time   4th time

(3) 4 times

If multiplying by 4 in the above two examples means that some number is added four times, then multiplying by a negative number would mean that the number is removed or subtracted four times.

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Positive × Negative

Example #17: (3)(−4) = −12

(3)(−4) means (3) is removed (or subtracted) 4 times from 0

$1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$

3 removed once   3 removed twice

$1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$

3 removed three times   3 removed four times

Negative × Negative

Example #18: (−3)(−4) = 12

(−3)(−4) means (−3) is removed (or subtracted) 4 times from 0

$1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$

−3 removed once   −3 removed twice

$1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$ $1 + (-1) = 0$

−3 removed three times   −3 removed four times

Based on the examples shown above as well as additional examples that could be produced, when integers with the same sign are multiplied, the answer is positive. When integers with different signs are multiplied, the answer is negative.

Recall the Commutative Property of Multiplication which states that $(-3)(4) = (4)(-3)$.

Operation	Signs		Sign of Answer
Multiplication	Same	$\begin{cases} +,\,+ \\ -,\,- \end{cases}$	+
Multiplication	Different	$\begin{cases} +,\,- \\ -,\,+ \end{cases}$	−

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