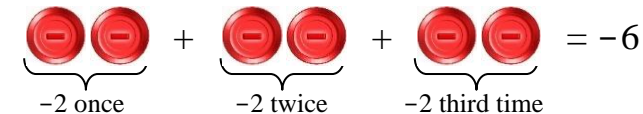


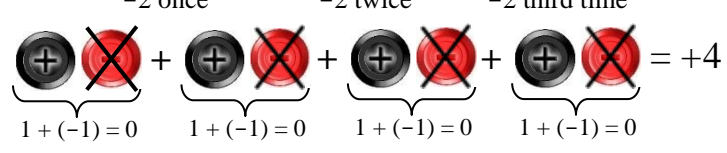
Check Your Answers on Multiplying Integers!

As in Adding (and Subtracting) Integers, a black chip or circle will represent +1 and a red chip or circle will represent -1. Manipulatives such as checkers can easily be used to mirror the processes presented. Using this visual approach, it is possible to determine the product without memorizing rules.

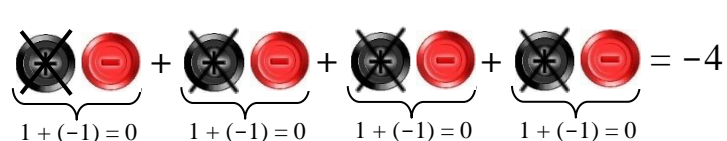
1. -6 Multiplication is a short-cut for repeated addition. In other words, (-2) times 3 means that (-2) is added 3 times: $(-2) + (-2) + (-2)$ as shown.



2. $+4$ If multiplying by a *positive* number indicates the number of times that number is added, then multiplying by a *negative* number would indicate the number of times that number is subtracted. (-4) times (-1) means that (-4) or 4 red chips are taken away (from 0) once, shown to the right.

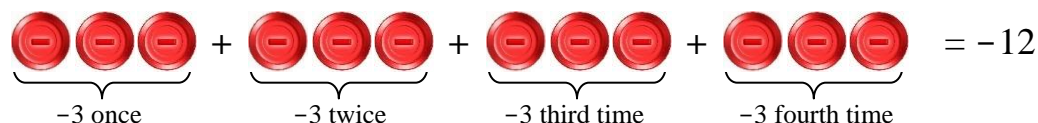


3. -4 (4) times (-1) means that $(+4)$ is taken away (from 0) once or you could recall the Commutative Property of Multiplication which states that $(4)(-1) = (-1)(4)$ so you could picture (-1) or one red chip 4 times.



Did you notice that multiplication can also be indicated by parentheses: $(4)(-1)$?

4. -12 Because multiplication is a short-cut for repeated addition, $(-3)(4)$ means (-3) four times as shown to the right with red chips (circles).



5. $+10$ Can you mentally picture those positives and negatives without actually seeing those “chips”?
Additional Note: You may want to generalize based on the patterns emerging: when integers with the same sign are multiplied, the answer is positive. When integers with different signs are multiplied, the answer is negative.

6. -24 The dot \cdot or parentheses are typically used to represent multiplication rather than \times which could be misinterpreted as the variable “ x ”. Also if there is no sign before a number, it is understood to be positive.

7. -28 Negative numbers are often placed in parentheses to eliminate confusion.

8. 60 When the sign of the number is positive, it is not necessary to include the $+$ before the number. Even though the numbers are larger, no problem for you!

9. -120 Did you first determine the sign of the answer? Yes!!

10. 0 You should not need a calculator here!! That Commutative Property of Multiplication will make short work of this one!

Perfect score? Yes! You've got this!! You're ready to move on to the next section!!!