OPERATIONS WITH INTEGERS:

Multiplying and Dividing by Negative Numbers

When a positive number is multiplied by a negative number, the result is always negative. For example, $7 \cdot (-4) = -28$ and $-10 \cdot 5 = -50$. When two negative numbers are multiplied together, the negative signs cancel each other out, and the result is positive. For example, $-4 \cdot (-3) = 12$ and $-11 \cdot (-7) = 77$.

To multiply two or more numbers when at least one of them is negative, count the total number of negative signs. If the total number of negative signs is even, the result will be positive, and if the total number of negative signs is odd, the result will be negative. Multiply the numbers with their signs removed and make this result positive or negative according to the total number of negative signs.

To divide two or more numbers when at least one of them is negative, follow the same steps, dividing instead of multiplying. Divide the numbers with their signs removed, and make this result positive or negative according to the total number of negative signs (positive if the total number of negative signs is even, negative if it is odd).

Examples. $3 \cdot (-4) = -12$ (1 negative sign)
$-5 \cdot (-1) = 5$ (2 negative signs)
$-11 \cdot (-1) \cdot 4 \cdot (-2) = -88$ (3 negative signs)
$18 : (-2) : (-3) = 3$ (2 negative signs)
$-20 : 4 : 5 = -1$ (1 negative sign)
$-5 \cdot (-12) : 3 \cdot (-4) : (-20) = 4$ (4 negative signs)

SparkNotes Editors. “SparkNote on Integers and Rationals.” SparkNotes.com. SparkNotes LLC. n.d.. Web. 29 Oct. 2015.