MULTIPLYING AND DIVIDING SIGNED NUMBERS

If the signs are the SAME the answer is ALWAYS POSITIVE

\((-2)(-3) = 6\) \((-8) ÷ (-4) = 2\)

If the signs are the DIFFERENT the answer is ALWAYS NEGATIVE

\((-2)(3) = -6\) \((8) ÷ (-4) = -2\)

Be careful with exponents!!!!!!!!!!!!

\((-3)^4 = (-3)(-3)(-3)(-3) = 81\)

\(-3^4 = -(3)(3)(3)(3) = -81\)

REMEMBER - we work with 2 numbers at a time

\((-2)(3)(-4)\)

\((-6)(-4)\) signs are different

\(24\) signs are the same

DO NOT GET THIS RULE MIXED UP WITH THE ADDITION RULE

Addition of signed numbers:

If the signs are the same, add and keep the sign

If the signs are different, subtract and use the sign of the number with the bigger absolute value
MULTIPLICATION PROPERTY OF -1

If you multiply a number by -1 you get the opposite of the number

\[ 4 \cdot (-1) = -4 \quad (-3) \cdot (-1) = 3 \]

MULTIPLICATION PROPERTY OF 0

Any number times 0 equals 0

\[ 4 \cdot 0 = 0 \quad (-5) \cdot 0 = 0 \]

Inverse Property of multiplication

A number times it's inverse equals 1

\[ 5 \cdot \frac{1}{5} = 1 \quad \frac{2}{3} \cdot \frac{3}{2} = 1 \quad \frac{3}{8} \cdot \frac{8}{3} = 1 \quad 2 \frac{1}{4} \cdot \frac{4}{9} = 1 \]

Remember \( 2 \frac{1}{4} = \frac{9}{4} \)