How do we find the area of a square? We multiply the two sides together: $s \cdot s = s^2$
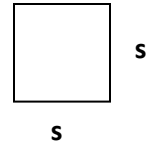
When a number is raised to the second power we call it **squared**. We say the area
is square inches, meters squared, or ft^2.
It is similar for volume. Here we measure the length by width by height
$s \cdot s \cdot s = s^3$ Here we say the volume is *cubic:* cubic feet or cm^3.
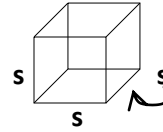
Here is how we write an **exponential number**. In this case 5 is the **base**, this is the number that is our **factor**, what we multiply by. The "2" is in the **exponent, power, or degree***(yes, lots of terms and you need to remember all of them!)* this number tells us how many times we multiply the **factor or base** by itself.

base 5^2 exponent

Simplify: $3^4 = 3 \cdot 3 \cdot 3 \cdot 3 = 81$ $2^5 =$ $5^3 =$

⚠️ Careful, you need to be aware of what a set of parentheses and a negative sign will do to the problem:

$(-2)^4 = (-2) \cdot (-2) \cdot (-2) \cdot (-2) = 16$ *vs* $-2^4 = (-1)(2^4) = -1 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = -16$
This is saying -2 is multiplied by itself 4 times   *here we have -1 times 2 raised to the 4th power!*

$\left(\frac{3}{4}\right)^2 =$ $-5^3 =$ $(-3)^3$ $(3)^0=$

⚠️ *Any number raised to the zero power is equal to 1: $a^0 = 1$.*

John is built a flower box. Its dimensions are 24 inches wide, by 10 inches deep, by 12 inches tall. How much dirt will he need to get to fill the box? *Draw a picture!*

Write each number as a power of the given base:
$64; base\ 8$ $-27; base\ 3$ $\frac{1}{3}; base\ 5$

Rachel (my daughter) is studying botany (biology of plants). While studying plant growth, she found that in one type of plant the cells split every hour. How many cells will result from **1 cell** dividing over a 12 hour period?
Draw a picture! LOOK FOR A PATTERN THAT WILL MAKE THIS EASIER!