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**Exponents and
Scientific Notation**

exponential form: has a base
and an exponent



base: what factor is being multiplied

exponent: how many times

$$B \leftarrow 2^5 \rightarrow E = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$$

"squared"

7^2



"cubed"

5^3

everything else....

"to the ___ power"

4th
22nd

*** any number to the 1st power
is itself



Examples: $6^1 = 6$ $1,425^1 = 1,425$

*** any number to the 0 power is 1

Examples: $6^0 = 1$, $5,280,000^0 = 1$

Negative Exponents



$$3^{-5} = \frac{1}{3^5} = \frac{1}{243}$$

$$2^{-3} = \frac{1}{2^3} = \frac{1}{8}$$

$$3^5$$

Write the following in exponential form.



Ex: $7 \cdot 7 \cdot 7$ 7^3

Ex: $.4 \times .4 \times .4 \times .4 \times .4$ $(0.4)^5$

Ex: $\frac{1}{5 \cdot 5}$ $\frac{1}{5^2}$ 5^{-2}

Write the following in standard form.



Ex: 3^4 $3 \cdot 3 \cdot 3 \cdot 3$ $= 81$

Ex: 7^0 1

Ex: 17^1 17

Ex: 4^{-2} $\frac{1}{4^2}$ $= \frac{1}{16}$

Write the following in standard form.



Ex: 7.1×10^{-5} .000071

Ex: 3×10^4 30,000

Write the following in scientific notation.



Ex: 4.310,000,000

$$4.31 \times 10^9$$

Ex: .00062

$$6.2 \times 10^{-4}$$



Homework:

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