Scientific Notation

*Only one number to the left of the decimal.

*Always end in x 10 ^ (exponent)

*Big numbers have positive exponent

*Numbers less than 1 have negative exponent

If you move the decimal to the left, it will have a positive exponent.

If you move the decimal to the right, it will have a negative exponent.

Put the following in Scientific Notation

34.342 0.00202 3,430,000

230,000 11.424 0.0003

0.00342 50,043 123.456

M	mega	1 million	10^6
k	kilo	1 thousand	10^3
	base	1	10^0
d	deci	1/10	10^-1
c	centi	1/100	10^-2
m	milli	1/1000	10^-3
	micro	1/1,000,000	10^-6
n	nano	1/1,000,000,000	10^-9
p	pico	1/1,000,000,000,000	10^-12

Converting between numbers with the same base unit.

BIGGER - smaller - BIGGER

smaller - BIGGER - smaller

Examples / Practice with converting sci not.

Rules for significant figures

1) all non-zeros are significant

2) all counting numbers infinitely significant

3) all conversion factors are infinitely significant

4) any number between significant figures is significant

5) zeros that act as place holders are NOT significant

6) all numbers before the x 10 ^exp are significant in scientific notation

Importance of sig figs

*in measurements

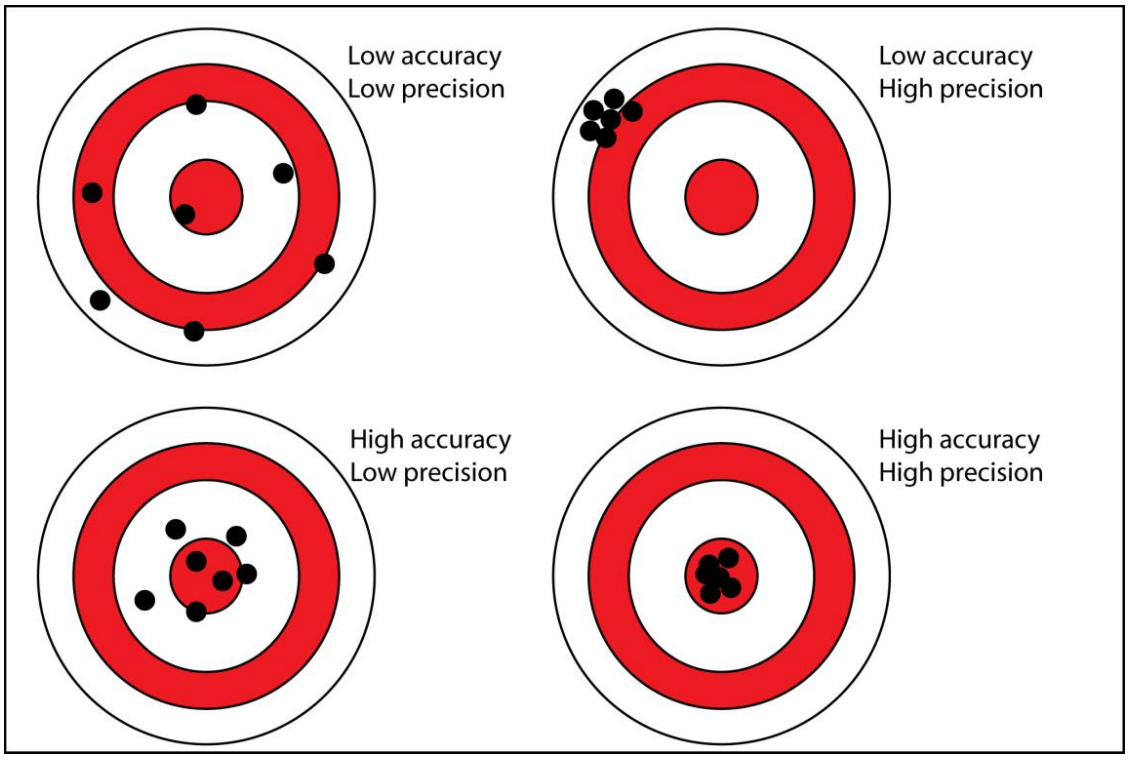
*consistency

*does not over inflate accuracy or precision

Vocab: Precision vs Accuracy

Precision is how good you are

Accuracy is how good the equipment is



Covering up zeros and "extra effort"

How many sig figs do each of the following have?

342.023	3.230 x 10^-3	43000
0.000432	320.030	0.00321
14.0345	5000	3200.2
0.00330	032	20.0001

Rules for Multiplying and Dividing with Sig Figs

1) Determine how many sig figs each number in the calculation has.
2) Multiply/Divide the numbers
3) Round the answer to the least number of sig figs

Examples of multiplying/dividing sig figs

Practice multiplying/dividing sig figs

Rules for adding/subtracting with sig figs

1) Make sure all numbers are in the same unit of measurement.

2) Line up the decimals.

3) Add/Subtract

4) Final answer must be rounded so that it has the same number of decimal places as the number with the least.

*note - you can gain or lose sig figs when adding or subtracting