

Measurements

Types of measurements:

Quantity	Base Unit
time	seconds
length	meters
mass	kilograms
temperature	Kelvin
amount of substance	mole

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Measurements

Metric Units:

Prefix	Quantity
kilo (k)	1000
hecto (h)	100
deka (D)	10
BASE	1
deci (d)	.1
centi (c)	.01
milli (m)	.001

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Significant Figures (Sig Figs.)

Digits that are ALWAYS significant:

- non-zero digits $1000 - 2$
 - > 2.65 = 3 sig figs
- zeros between 2 sig figs "sandwich rule"
 - > 3004 = 4 sig figs
 - 100. — 3 sig. figs — decimals can sandwich the left
- all FINAL zeros to the RIGHT of a DECIMAL
 - > 6.7000 = 5 sig figs

Handwritten notes: sig figs only used for measurements; determines the accuracy of measure. tool

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Significant Figures (Sig Figs.)

Adding/Subtracting Rule:

- only as accurate as your LEAST accurate measurement
 - > 2.54 + 2.0 = 4.54 = 4.5

Multiplying/Dividing Rule:

- only have as many sig figs as your value with the least amount of sig figs
 - > 6.8 x 1 = 6.8 = 7

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Practice

Determine the number of sig figs in the measurements below:

1. 1.006 ~~X~~ 4
2. 0.0054 ^{place holders} 3
3. 600 1
4. 600. 3
5. 5,102.0 5

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Practice

Calculate the following and put in the correct number of sig figs.

1. ~~20.20~~ 10.2 + 0.08 + 10 20
2. 0.45 - 0.10 + 0.2 0.6 .55
3. 12 x 3 36 = 40
4. 120. + 2.00 122.0

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