

23		
<u>12.5</u>		
<u>13.5</u>		
13		
	13.2	
	13.1	
	13.3	
	13.4	
		13.3
		13.2
		13.4
		13.46cm
		13.19

Significant Figures

- includes all "known" digits +
1 estimated digit

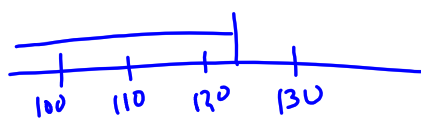
Rules for determining the # of significant figures (digits) in a measurement.

(counting #'s do not have sig figs)

ex- 3 cars

1) All non 0s are significant.

123 cm 3 s.f.



2) 0s between non 0s are sig.

1203 cm 4 s.f.

12.003 cm 5 s.f.

3) 0s after a decimal point AND after a non 0 are sig.

1.0 2 s.f.

1.20 3 s.f.

10.0 3 s.f.

12.3400 6 s.f.

4) "Placeholder 0s are NOT significant (but, they are important)

12,000 km 2 s.f.

.0012 cm 2 s.f.

12,000	3 s.f.	$\underline{1.20} \times 10^4$
12,000	5 s.f.	$\underline{1.2000} \times 10^4$
12,000.	5 s.f.	
12,000	2 s.f.	$\underline{1.2} \times 10^4$

3 101 cm

5 10,001 km

3 10.1 mm

3 10,000 miles

4 10.01 g

2 1.0×10^3 cm

4 10.10 km

3 10,100 cm

1 0.01 cm

4 0.01010 mm

2 0.010 cm

3 10.0 m

0 10 cats
counting #

Calculations with sig figs

\times or \div Answer has the same # of sig figs as the # with the fewest

$$(1.3 \text{ cm}) \times (62.5 \text{ cm}) = 81.25 \text{ cm}^2$$

$\underset{2}$
 $\underset{3}$
 $\boxed{81 \text{ cm}^2}$

$$\frac{14.352 \text{ g}}{2.7 \text{ mL}} = 5.315555\dots$$

$\boxed{5.3 \frac{\text{g}}{\text{mL}}}$

$+$ or $-$

Answer has the same # of decimal places as the # with the fewest

$$\begin{array}{r} 3.1 \text{ g} \\ 12.45 \text{ g} \\ 533.715 \text{ g} \\ \hline 549.265 \text{ g} \\ \boxed{549.3 \text{ g}} \end{array}$$

$$\begin{array}{r} 24 \\ + 153 \\ \hline 27.93 \end{array}$$

$$\begin{array}{r} 20 \\ 1.5 \\ 2.4 \\ \hline 23.9 \\ 20 \end{array}$$

Round to 3 s.f.

125.6 mm 126

16.148 cm 16.1

0.0013925 mm 0.00139

even/odd rule for rounding 5's

123.5 → 124

124.5 → 124

124.5001 → 125

if a # ends in 5 exactly, then if
the # before the 5 is odd - round up
even - stays same

