

Aug 27 Block 8

Quiz [13] write SI prefixes, symbols & powers of 10"Quiz" convert 60 miles/hr to feet/sec

$$\frac{5280 \text{ ft}}{\text{mile}} = \frac{\text{mile}}{5280 \text{ ft}} = 1 = \frac{\text{hr}}{3600 \text{ sec}} = \frac{3600 \text{ sec}}{\text{hr}}$$

$$\frac{60 \text{ mile}}{\text{hr}} \cdot \frac{3600 \text{ sec}}{\text{hr}} \cdot \frac{\text{hr}}{3600 \text{ sec}} \cdot \frac{5280 \text{ ft}}{\text{mile}} = \frac{60 \times 5280}{3600} \frac{\text{mile} \cdot \text{hr} \cdot \text{ft}}{\text{hr} \cdot \text{sec} \cdot \text{mile}}$$

Significant figures help us to communicate the precision of our measurement

accuracy and precision → how well we can repeat measurement  
 ↳ how close to the "true" value  
 how many places can I measure?  
 more decimals = more precise  
 graduations

### Sig fig rules

1. non-zero digits ARE significant

123 3sf. 9.5 2sf

2. in-between zeroes are sig.

607 8.009

3. lead zeroes are NOT never sig

0.12 2sf

0.0304 3sf

4. trailing zeroes after the decimal ARE sig

5.0 2sf    6.070<sub>2sf</sub>    0.080 2sf

when + or -

1. line up #'s on decimal like 4th grade
2. i.d. column of least precision
3. round answer to this column

$$\begin{array}{r} 95 \\ + 6.3 \\ \hline \end{array}$$

when  $\times$  or  $\div$

1. id # of sf's in each factor
2. id. fewest # of sf's
3. round answer to that # of sf's

$$\begin{array}{r} 17 \div 3 = 5.66\bar{6} \\ 2 \quad 1 \quad 1 \quad \textcircled{6} \end{array}$$

perfect #s have  $\infty$  sig figs

a count

a definition    60 sec = min