

SIGNIFICANT DIGITS (p17-20) 10.250

• 1-9 significant

• #0# ZERO IS significant $\underbrace{102}_3$

• "placeholder" 0's are NOT significant

$$\begin{array}{ccc} 120 & 0.012 & 1.2 \times 10^{-2} \\ \underbrace{\quad}_2 & \underbrace{\quad}_2 & \end{array}$$

12×10^2

• 0's to the right of a #1-9 AND to the right of the decimal point ARE SIGNIFICANT

$$\begin{array}{ccc} 0.012 & 0.01200 & 10.01200 \\ \underbrace{\quad}_2 & \underbrace{\quad}_4 & \underbrace{\quad}_7 \end{array}$$

$\times, \div \Rightarrow$ the answer should have as many s.d.'s as the factor with the fewest

$$0.0260 \times 1.7 \times 10^4 = 2 \text{ s.d.'s in answer}$$

$\underbrace{\quad}_3 \quad \underbrace{\quad}_2$

$+, - \Rightarrow$ answer should have the same # dec. places to right of decimal as # number being added with fewest

$$\begin{array}{r} 0.0260 \\ + 15.7 \\ \hline 15.7 \end{array}$$

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Hints

?#1 want the mass $11.4 \text{ g} = 1 \text{ cm}^3$

$$1 \text{ inch} = 2.54 \text{ cm}$$

?#2 10,000 miles x _____

answer unit is \$

?#3 see ?#2

?#4 1.0 cm x _____ be careful
w/ radius

?#5 100 gal x _____ $62.4 \text{ lbs} = 1 \text{ ft}^3$

?#6 1.0 kg = 2.2 lbs