Name KEY Period _____ (PRACTICE) HIC Quiz. Chapter 3

State the number of significant digits in each measurement.

1) 1345 4 2) 5.0001×10^5 5 3) 32.00 4 4) 1.0 2

Solve the following problems and report answers with appropriate number of significant digits.

5) 9.367g - 8.20g = 1.167g → 1.17g (go with least number of digits past the decimal point)

6) 3.199g / 2.5g 1.2796g → 1.3g (go with least # of sig figs)

Identify the sum or difference

7) $(8.24 \times 10^4) + (7.0 \times 10^9)$ $700{,}000 \times 10^4$ = $700{,}008.24 \times 10^4 = 7.0000824 \times 10^9$

8) $(4.23 \times 10^{-2}) - (2.1 \times 10^{-2})$ $2.13 \times 10^{-2} \rightarrow 2.1 \times 10^{-2}$

Express the product or quotient

9) $(4.66 \times 10^{-4}) \times (7.59 \times 10^{-7})$ $35.3694 \times 10^{-11} \rightarrow 3.54 \times 10^{-10}$

10) $(5.5 \times 10^3) / (8.3 \times 10^{-5})$ $0.66 \times 10^8 \rightarrow 6.6 \times 10^7$

Dimensional Analysis. Show you work to get full credit.

11) 358 g → kg

$$\frac{358\ g \mid 1\ kg}{1000\ g} = 0.358\ kg \rightarrow 3.58 \times 10^{-1}\ kg$$

12) 4 days → seconds

$$\frac{4\ days \mid 24\ hours \mid 60\ min \mid 60\ sec}{1\ day \mid 1\ hour \mid 1\ min} = 345{,}600\ sec \rightarrow 3.456 \times 10^5\ sec$$

13) 238km → cm

$$\frac{238\ km \mid 1{,}000\ m \mid 100\ cm}{1\ km \mid 1\ m} = 23{,}800{,}000\ cm \rightarrow 2.38 \times 10^7\ cm$$

14) 150 km/sec → miles per year
(1km = 0.62 miles)

$$\frac{150\ km}{sec} \mid \frac{0.62\ miles}{1\ km} \mid \frac{60\ sec}{1\ min} \mid \frac{60\ min}{1\ hour} \mid \frac{24\ hours}{1\ day} \mid \frac{365\ days}{1\ year} = 2{,}932{,}848{,}000\ miles/year$$

$2.9 \times 10^9\ miles/year$