

**Significant Figures (Sig.Fig.) and Dimensional Analysis (DA) Practice**  
From Bauck, ChemFiesta.com and ScienceSpot.net

**SIG.FIGS.**

PART 1: How many significant figures are in each of the following numbers?

- |             |                            |
|-------------|----------------------------|
| 1) 5.40     | 8) $1.2 \times 10^3$       |
| 2) 210      | 9) 0.00120                 |
| 3) 801.5    | 10) 0.0102                 |
| 4) 1000     | 11) $9.010 \times 10^{-6}$ |
| 5) 101.0100 | 12) 2370.0                 |
| 6) -311     | 13) 50                     |
| 7) 50.0     | 14) 606                    |

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PART 2: Calculate the answer to the correct number of sig. figs., using the rules.

- 15)  $13.9 + 98.08$
- 16)  $2.0987 \times 2345$
- 17)  $(2.897 \times 10^3) + (2.09 \times 10^4)$
- 18)  $12.09 / 12.8$
- 19)  $12.039 / 34.9$
- 20)  $12.098 + 13.09$
- 21)  $12.98 - 6.098$
- 22)  $(2.5 \times 10^{23}) \times (2.45 \times 10^{25})$
- 23)  $13.9 - 13.70$
- 24)  $13.98 \times 24.09$

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PART 3: Short answers

- 25) Why are significant figures important when taking data in the laboratory?
- 26) Why are significant figures *not* important when solving problems in your math class?
- 27) Using two different instruments, I measured the length of my foot to be 27 centimeters and 27.00 centimeters. Explain the difference between these two measurements.

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DIMENSIONAL ANALYSIS on the other side →

## **Dimensional Analysis (DA):**

### **PART 4: Practice Problems**

- 28) What is dimensional analysis? What are “dimensions”?
- 29) What is a conversion factor?
- 30) How many feet are there in 341 centimeters? (exactly  $2.54 \text{ cm} = 1 \text{ in}$ )
- 31) How many inches are there in 45.6 cm? (exactly  $2.54 \text{ cm} = 1 \text{ in}$ )
- 32) How many cm are there in  $1.23 \times 10^{-6} \text{ km}$ ?
- 33) How many hours are there in 34.5 years?
- 34) How many inches are there in 355 millimeters? (exactly  $2.54 \text{ cm} = 1 \text{ in}$ )
- 35) How many miles are there in  $3.44 \times 10^8$  inches? ( $5280 \text{ ft} = 1 \text{ mi}$ )
- 36) Susanna has a pencil that is 19 cm long. How long the pencil in inches?  
(exactly  $2.54 \text{ cm} = 1 \text{ in}$ )
- 37) Macho Mel can lift 200.00 kilograms with ease. How much is this in pounds?  
( $2.2 \text{ lbs.} = 1 \text{ kg}$ )
- 38) The distance between Happyville and Sadville is 60.0 mi. How far is this in km?  
( $1.61 \text{ km} = 1 \text{ mi.}$ )
- 39) A can of Cheap-O soda holds 355 mL of soda. How many milliliters would be in 2 cans of soda?
- 40) A cookie recipe calls for exactly 1 pound of butter. How many grams of butter would be needed for 3 batches? ( $28.3 \text{ g} = 1 \text{ oz}$ )