Unit 3B - Mole Relationships

1. Significant Figures - digits that carry meaning in a measurement

Rules	Examples
A. Any nonzero digit is significant	1) 3248 g 4 s.f. 2) 50 °C 1 sf
	3) 0.0061 m 2 sf
B. Zeroes between digits (sandwiched) are always significant	4) 103 °F 3 sf 5) 920,006 cm 6 sf
C. Zeroes before digits (leading) are NEVER significant. (place holders)	6) 0.123 kg 3 sf 7) 0.0098 kg 2 sf
	8.) 0.0000006 mm 1 sf
D. Zeroes after digits (trailing) are only significant if a decimal point is written in the measurement.	9) 520. mL 3 sf 10) 520 mL 2 sf
	11) 0.005020 mL 4 sf

Practice

1) 0.900 L 3 sf

2) 30.60010 mL 7 sf

3) 0.0000201900 ms 6 sf

2. Significant Figures when Multiplying/Dividing

Your answer must have the same amount of s.f. as the measurement w/ the least amount of s.f.

Examples

1) 2000.0 cm 5 sf
× 39 cm 2 sf ✓
78 000 cm² 2 sf

2) 450.g / 16.00 mL = 28.125 g/mL
3 sf ✓ 4 sf 3 sf
= 28.1 g/mL

3) 0.456 g 3 sf
× 3 1 sf ✓
1.368 g 1 sf
1 g

4) 0.0456 g 3 sf
× 3.0 2 sf ✓
1.368 g 2 sf
1.4 g

3. Significant Figures when Adding/Subtracting

Your answer can have as many s.f. after the decimal point as the measurement with the least amount of s.f. after the decimal point.

Examples

1) 32.66 m 2 sf ✓
+ 4.5496 m 4 sf
37.2096 m 2 sf
37.21 m

2) 100.00 °C 2 sf
− 75.0 °C 1 sf ✓
25.0 °C 1 sf

3) 100.001 g 3 sf
− 18 g 0 sf
82.001 g
82. g

4) 2020.00 m 2 sf
− 50. m 0 sf ✓
1970. 0 sf