

Review of Significant Digits, Scientific Notation and SI Units

State the number of significant digits in each of the following measured values:

- | | | | |
|-------------------------|-------|----------------------------|-------|
| 1. 18.56 g | _____ | 4. 1.00 W | _____ |
| 2. 1500°C | _____ | 5. 0.05730 mol | _____ |
| 3. 0.0062 L | _____ | 6. 8.0×10^{-2} mL | _____ |
| 7. 14.08 cm | _____ | 9. 0.100 km | _____ |
| 8. 1.58×10^8 m | _____ | 10. 62 km/h | _____ |

Convert the following numbers into scientific notation. The number in brackets indicates the number of significant digits the answer is to be rounded to.

- | | | | |
|-----------|-----------|---------------|-----------|
| 1. 1000 | _____ (1) | 4. 0.00001098 | _____ (3) |
| 2. 492.32 | _____ (3) | 5. 6 995 000 | _____ (3) |
| 3. 0.0573 | _____ (2) | 6. 62.49 | _____ (2) |

Using the SI Prefixes table on your data sheet, perform the following conversions. Maintain the same number of significant digits in each conversion.

- 0.520 km = _____ m
- 100 mL = _____ L
- 152.5 cm = _____ m
- 3300 mg = _____ g
- 650 kg = _____ g
- 200 ML = _____ L
- 45 g = _____ kg
- 10.8 mol = _____ mmol
- 0.450 L = _____ mL
- 1500 m = _____ km

Perform the following calculations. Round your answer to the correct number of significant digits, using scientific notation where necessary. Include units.

1. $16.56 \text{ mL} - 6.3 \text{ mL} = \underline{\hspace{2cm}}$

2. $21.4 \text{ g} \div 0.825 \text{ mol} = \underline{\hspace{2cm}}$

3. $480 \text{ km} + 24.07 \text{ km} = \underline{\hspace{2cm}}$

4. $0.550 \text{ mol} \times 40.00 \text{ g/mol} = \underline{\hspace{2cm}}$

5. $18.4 \text{ g/mL} \times 5.5 \text{ mL} = \underline{\hspace{2cm}}$

6. $22.99 \text{ g/mol} + 35.45 \text{ g/mol} = \underline{\hspace{2cm}}$

7. $18.5^\circ\text{C} - 4.5^\circ\text{C} = \underline{\hspace{2cm}}$

8. $6.0 \text{ g} \div 24.30 \text{ g/mol} = \underline{\hspace{2cm}}$

9. $19.55 \text{ mL} - 17.55 \text{ mL} = \underline{\hspace{2cm}}$

10. $15\,600 \text{ g} \div 2000 \text{ mol} = \underline{\hspace{2cm}}$