Measurement And Metric Worksheet

I. Fill in the blanks with the word or words that best completes the statement.

1) The meter is a little longer than _____ ft.

2) One-half an inch would be (shorter, longer) than 1.0 cm.

3) Write the accepted SI abbreviations for each unit.

(a)	**milligram**	**(c)**	**deciliter**
(b)	**microliter**	**(d)**	**milliliter**

4) The _____ of a measurement describes how close the measurement agrees with the accepted value.

5) The _____ of a measurement depends on its reproducibility.

6) The space occupied by a sample of matter is known as _____.

7) The quantity of _____ an object contains is its mass.

8) The mass of 1.0 cm^3 of water at 4°C is _____.

9) The ratio of the mass of an object to its volume is its _____.

10) To convert °C to Kelvin, the number _____ is added to °C.

II. **Change each measurement to scientific notation.**

(a) **1,062,457 mm**

(b) **0.00543 km**

(c) **111.6 g**

(d) **0.00000521 L**

(e) **5.025 cm^3**

III. **Change each measurement to a whole number or decimal.**

(a) **6.150×10^3 km**

(b) **5.362×10^2 mg**

(c) **2.35×10^{-2} cm**

(d) **8.79×10^{-5} cm^2**

IV. **Perform the following operations and give the answers in scientific notation with the correct number of significant figures.**

(a) **21.6 m + 8.02 m + 171.220 m**

(b) **2083 L - 20 L**

(c) **47.68 km + 538.01 km + 39 km**

(d) **0.32 cm x 0.76 cm x 14.2 cm**

(e) **$(7.24 \times 10^4$ mm$)/(4.6 \times 10^2$ mm$)$**

(f) **3.05×10^{-5} m x 3.44×10^{-3} m**

V. Use the Factor Label Method to perform the following conversions and give your answers to the correct number of significant figures.

(a) 0.10 m = _____ cm

(b) 2985 m = _____ cm

(c) 15.64 g = _____ g

(d) 1640 mL = _____ L

(e) 15 mm = _____ cm

(f) 15 cm = _____ m

(g) 0.98 m = _____ cm

(h) 0.067 g = _____ mg

(i) A proton has a mass of 1.67×10^{-27} kg. Calculate the mass of 6.02×10^{23} protons.

Solutions

I. Fill in the blanks with the word or words that best completes the statement.

1) **3**
2) **longer**
3) **(a) mg** **(c) dl**
   (b) µl **(d) ml**
4) **accuracy**
5) **precision**
6) **volume**
7) **matter**
8) **1.0 g**
9) **density**
10) **273**

II. **Change each measurement to scientific notation.**

(a) **1.062457×10^{6} mm**

(b) **5.43×10^{-3} km**

(c) **1.116×10^{2} g**

(d) **5.21×10^{-6} L**

(e) **5.025 cm^3**

III. **Change each measurement to a whole number or decimal.**

(a) **6150 km**

(b) **536.2 mg**

(c) **0.0235 cm**

(d) **0.0000879 cm^2**

IV. **Perform the following operations and give the answers in scientific notation with the correct number of significant figures.**

(a) **200.84 m**

(b) **2063 L**

(c) **625 km**

(d) **3.5 cm^3**

(e) **160**

(f) **1.05×10^{-7} m^2**

V. **Use the Factor Label Method to perform the following conversions and give your answers to the correct number of significant figures.**

(a) $0.10\ \cancel{m} \times 10^{2}\ cm/1\ \cancel{m} = 1.0\ cm$

(b) $2985\ \cancel{m} \times 1\ km/10^{3}\ \cancel{m} = 2.985\ km$

(c) $15.64\ \cancel{mg} \times 1\ g/10^{3}\ \cancel{mg} = 0.01564\ g$

(d) $1640\ \cancel{ml} \times 1L/10^{3}\ \cancel{ml} = 1.640\ L$

(e) $15\ \cancel{mm} \times 1\ cm/10\ \cancel{mm} = 1.5\ cm$

(f) $15\ \cancel{cm} \times 1\ m/10^{2}\ \cancel{cm} = 0.15\ m$

(g) $0.98\ \cancel{m} \times 10^{2}\ cm/1\ \cancel{m} = 98\ cm$

(h) $0.067\ \cancel{g} \times 10^{3}\ mg/1\ \cancel{g} = 67\ mg$

(i) $1.67 \times 10^{-27}\ kg/\cancel{p^{+}} \times 6.02 \times 10^{23}\ \cancel{p^{+}} = 1.01 \times 10^{-3}\ kg$