

Name: KEY

Date: _____ Per: _____

Chemistry
SI Unit Conversions WS 1

- I. Perform the following SI unit conversions, showing all work.
1. 5.23 L = 5230 mL

$$\frac{5.23 \cancel{\text{L}}}{0.001 \cancel{\text{L}}} \times \frac{1 \text{ mL}}{1} = 5230 \text{ mL}$$

Annotations: "given" (circled), "wanted" (circled), "unit w/ prefix gets '1'", "base unit gets multiplier"
 2. 734.2 ms = 0.7342 s

$$\frac{734.2 \cancel{\text{ms}}}{1000 \cancel{\text{ms}}} \times \frac{1 \text{ s}}{1} = 0.7342 \text{ s}$$
 3. 4.3 kL = 4300 L

$$\frac{4.3 \cancel{\text{kL}}}{1000 \cancel{\text{L}}} \times \frac{1 \text{ L}}{1} = 4300 \text{ L}$$
 4. 5.86 m = 5860 mm

$$\frac{5.86 \cancel{\text{m}}}{0.001 \cancel{\text{m}}} \times \frac{1 \text{ mm}}{1} = 5860 \text{ mm}$$
 5. 812 cm³ = 812 mL

$$1 \text{ cm}^3 = 1 \text{ mL, so...}$$
 6. 152.7 mg = 0.1527 g

$$\frac{152.7 \cancel{\text{mg}}}{1000 \cancel{\text{mg}}} \times \frac{1 \text{ g}}{1} = 0.1527 \text{ g}$$
 7. 594 m = 0.594 km

$$\frac{594 \cancel{\text{m}}}{1000 \cancel{\text{m}}} \times \frac{1 \text{ km}}{1} = 0.594 \text{ km}$$
 8. 223 μg = 0.223 mg

$$\frac{223 \cancel{\mu\text{g}}}{0.000001 \cancel{\mu\text{g}}} \times \frac{1 \text{ mg}}{1000 \cancel{\text{g}}} = 0.223 \text{ mg}$$
 9. 98 mL = 0.098 L

$$\frac{98 \cancel{\text{mL}}}{1000 \cancel{\text{L}}} \times \frac{1 \text{ L}}{1} = 0.098 \text{ L}$$
 10. 14 g = 14000 mg

$$\frac{14 \cancel{\text{g}}}{0.001 \cancel{\text{g}}} \times \frac{1 \text{ mg}}{1} = 14000 \text{ mg}$$
 11. 27.5 g = 0.0275 kg

$$\frac{27.5 \cancel{\text{g}}}{1000 \cancel{\text{g}}} \times \frac{1 \text{ kg}}{1} = 0.0275 \text{ kg}$$

12. $9436 \mu\text{m} = \underline{9.436} \text{ mm}$ $\frac{9436 \cancel{\mu\text{m}} | 0.000001 \cancel{\text{m}}}{1 \cancel{\mu\text{m}} | 0.001 \cancel{\text{m}}} = 9.436 \text{ mm}$
13. $\underline{0.0880} \text{ L} = 88.0 \text{ mL}$ $\frac{88.0 \cancel{\text{mL}} | 0.001 \cancel{\text{L}}}{1 \cancel{\text{mL}}} = 0.0880 \text{ L}$
14. $7500 \text{ km} = \underline{7.5} \text{ Mm}$ $\frac{7500 \cancel{\text{km}} | 1000 \cancel{\text{m}}}{1 \cancel{\text{km}} | 1000000 \cancel{\text{m}}} = 7.5 \text{ Mm}$
15. $\underline{432} \mu\text{s} = 0.000432 \text{ s}$ $\frac{0.000432 \cancel{\text{s}} | 1 \cancel{\mu\text{s}}}{0.000001 \cancel{\text{s}}} = 432 \mu\text{s}$
16. $648.0 \text{ cg} = \underline{0.006480} \text{ kg}$ $\frac{648.0 \cancel{\text{g}} | 0.01 \cancel{\text{g}}}{1 \cancel{\text{cg}} | 1000 \cancel{\text{g}}} = 0.006480 \text{ kg}$
17. $17.9 \text{ dL} = \underline{1.79} \text{ L}$ $\frac{17.9 \cancel{\text{dL}} | 0.1 \cancel{\text{L}}}{1 \cancel{\text{dL}}} = 1.79 \text{ L}$
18. $0.0893 \text{ kg} = \underline{89300} \text{ mg}$ $\frac{0.0893 \cancel{\text{kg}} | 1000 \cancel{\text{g}}}{1 \cancel{\text{kg}} | 0.001 \cancel{\text{g}}} = 89300 \text{ mg}$
19. $\underline{525} \text{ mL} = 0.525 \text{ L}$ $\frac{0.525 \cancel{\text{L}} | 1 \cancel{\text{mL}}}{0.001 \cancel{\text{L}}} = 525 \text{ mL}$
20. $\underline{78120} \text{ m} = 0.07812 \text{ Mm}$ $\frac{0.07812 \cancel{\text{Mm}} | 1000000 \cancel{\text{m}}}{1 \cancel{\text{Mm}}} = 78120 \text{ m}$
21. $27 \text{ kg} = \underline{27000000} \text{ mg}$ $\frac{27 \cancel{\text{kg}} | 1000 \cancel{\text{g}}}{1 \cancel{\text{kg}} | 0.001 \cancel{\text{g}}} = 27000000 \text{ mg}$
22. $\underline{12.3} \text{ cm} = 123 \text{ mm}$ $\frac{123 \cancel{\text{mm}} | 0.001 \cancel{\text{m}}}{1 \cancel{\text{mm}} | 0.01 \cancel{\text{m}}} = 12.3 \text{ cm}$
23. $43 \text{ kL} = \underline{43000000} \text{ mL}$ $\frac{43 \cancel{\text{kL}} | 1000 \cancel{\text{L}}}{1 \cancel{\text{kL}} | 0.001 \cancel{\text{L}}} = 43000000 \text{ mL}$
24. $2567 \text{ g} = \underline{0.002567} \text{ Mg}$ $\frac{2567 \cancel{\text{g}} | 1 \cancel{\text{Mg}}}{1000000 \cancel{\text{g}}} = 0.002567 \text{ Mg}$
25. $876 \mu\text{l} = \underline{0.00000876} \text{ kL}$ $\frac{876 \cancel{\mu\text{L}} | 0.000001 \cancel{\text{L}}}{1 \cancel{\mu\text{L}} | 1000 \cancel{\text{L}}} = 0.00000876 \text{ kL}$