

Name: _____

Date: _____

Physics 20

Assignment 2

Metric Conversion Worksheet

Use your Metric Staircase sheet to answer the following questions. Show your work.

Single Unit Conversion

1. $49.6 \text{ dm} \times \frac{\text{m}}{\text{dm}} = \text{_____ m}$
2. $240 \text{ kg} \times \frac{\text{g}}{\text{kg}} = \text{_____ g}$
3. $6.37 \text{ N} \times \frac{\text{nN}}{\text{N}} = \text{_____ nN}$
4. $4.5 \text{ L} \times \frac{\text{daL}}{\text{L}} = \text{_____ daL}$
5. $90 \text{ hm} \times \frac{\text{mm}}{\text{hm}} = \text{_____ mm}$
6. $200 \text{ mL} = \text{_____ L}$
7. $12.1 \text{ fV} = \text{_____ V}$
8. $478 \text{ MHz} = \text{_____ Hz}$
9. $8 \text{ Tmol} = \text{_____ mol}$
10. $0.023 \text{ nW} = \text{_____ W}$
11. $7.3 \text{ m} = \text{_____ cm}$
12. $0.61 \text{ A} = \text{_____ } \mu\text{A}$
13. $34.2 \text{ g} = \text{_____ kg}$
14. $62.3 \text{ J} = \text{_____ GJ}$
15. $22 \text{ m} = \text{_____ pm}$

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Double Unit Conversion

$$1. \quad 7.82 \text{ mC/mV} \quad x \quad \frac{\text{C}}{\text{mC}} \quad x \quad \frac{\text{mV}}{\text{V}} = \text{_____ C/V}$$

$$2. \quad 0.045 \text{ g/L} \quad x \quad \frac{\text{mg}}{\text{g}} \quad x \quad \frac{\text{L}}{\text{mL}} = \text{_____ mg/mL}$$

$$3. \quad 3.84 \text{ kmol/dL} \quad x \quad \frac{\text{mol}}{\text{kmol}} \quad x \quad \frac{\text{dL}}{\text{L}} = \text{_____ mol/L}$$

$$4. \quad 150 \text{ cJ/g} \quad x \quad \frac{\text{J}}{\text{cJ}} \quad x \quad \frac{\text{g}}{\text{kg}} = \text{_____ J/kg}$$

$$5. \quad 25 \text{ kJ/mC} \quad x \quad \frac{\text{J}}{\text{kJ}} \quad x \quad \frac{\text{mC}}{\text{C}} = \text{_____ J/C}$$

$$6. \quad 8.98 \text{ kV/A} \quad x \quad \frac{\text{V}}{\text{kV}} \quad x \quad \frac{\text{A}}{\text{mA}} = \text{_____ V/mA}$$

$$7. \quad 0.0922 \text{ N} \cdot \text{m} \quad x \quad \frac{\mu\text{N}}{\text{N}} \quad x \quad \frac{\text{km}}{\text{m}} = \text{_____ } \mu\text{N} \cdot \text{km}$$

$$8. \quad 1.62 \text{ hK/dm} \quad x \quad \text{_____} \quad x \quad \text{_____} = \text{_____ K/km}$$

$$9. \quad 40 \text{ nm/mg} \quad x \quad \text{_____} \quad x \quad \text{_____} = \text{_____ cm/kg}$$

$$10. \quad 0.0278 \text{ kg/mL} \quad x \quad \text{_____} \quad x \quad \text{_____} = \text{_____ cg/hL}$$

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Time Conversion

$$1. \quad 3.0 \text{ s} \quad \times \frac{\text{min}}{\text{s}} = \text{_____ min}$$

$$2. \quad 1080 \text{ s} \quad \times \frac{\text{min}}{\text{s}} \times \frac{\text{hr}}{\text{min}} = \text{_____ hours}$$

$$3. \quad 14400 \text{ min} \quad \times \text{_____} = \text{_____ days}$$

$$4. \quad 0.021 \text{ days} \quad \times \text{_____} = \text{_____ min}$$

$$5. \quad 2 \text{ years} \quad \times \text{_____} = \text{_____ hours}$$

$$6. \quad 90 \text{ km/hour} \quad \times \frac{\text{m}}{\text{km}} \times \frac{\text{hr}}{\text{s}} = \text{_____ m/s}$$

$$7. \quad 362 \text{ V} \cdot \text{s} \quad \times \text{_____} = \text{_____ kV} \cdot \text{min}$$

$$8. \quad 2.00 \text{ cm/s} \quad \times \text{_____} = \text{_____ m/day}$$

$$9. \quad 0.00189 \text{ J/s} \quad \times \text{_____} = \text{_____ } \mu\text{J/hour}$$

$$10. \quad 7150 \text{ dm/s} \quad \times \text{_____} = \text{_____ km/min}$$

Bonus! (hint: note that time is **squared** in question 12)

$$11. \quad 0.0004 \text{ min} \quad \times \text{_____} = \text{_____ ns}$$

$$12. \quad 360 \text{ km/hour}^2 \quad \times \text{_____} = \text{_____ m/s}^2$$