

Exercise 2.3b(H)

Chemistry Math Worksheet

Name: _____

Date: _____ Per: _____

DIRECTIONS: Answer the following in the space provided.

Complete the following table of SI base units.

Quantity	Base unit	Symbol
1.		s
2. <i>Mass</i>		
3.	<i>kelvin</i>	
4. <i>Length</i>		

5. Arrange the following prefixes in order from largest to smallest.

centi- deci- kilo- mega- milli- hecto- micro-

1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____

6. Convert the following:

a. 236 K to °C

b. 34 °C to kelvins

c. 298 K to °C

d. 67 °C to kelvins

e. 458 K to °C

f. 67.5 °C to kelvins

7. Convert the following into scientific notation:

a. 0.003467

b. 34.3445

c. 0.000 001 2

d. 0.03501

e. 2 300 000

f. 0.000 070 16

g. 570 002 000

h. 1.00

8. Convert the following into standard notation:

a. 2.65×10^{-7}

b. 1.45×10^3

c. 7.13×10^{-2}

d. 3.33×10^7

e. 4.106×10^8

f. 7.105×10^{-3}

g. 1.4×10^{-2}

h. 6.47×10^{-7}

9. Use the following information to perform the conversions below:

1 widget(wg) = 13 thingamajigs(tm)

3 doohickies (dh) = 0.75 watchamacallits(wm)

4 thingamajigs(tm) = 7 doohickies (dh)

2.3 watchamacallit(wm) = 71 thingamabobs(tb)

a. 48.5 widgets to watchamacallits

b. 0.95 doohickies to thingamabobs

10. Use dimensional analysis to convert 6.2 days into minutes.

11. Calculate the percent error for each of the following boiling points of water (accepted value 100.0°C)

a. 101.4 °C

b. 95.8 °C

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Directions: Complete the following calculations including units.

- | | | | | | |
|-----|---|----------------------|-----|--|----------------------|
| 12. | $\frac{(100 \text{ g})}{(15 \text{ mL})}$ | <input type="text"/> | 17. | $\frac{(41.7 \text{ kg})}{(1.3 \text{ dm} \cdot 3.4 \text{ dm} \cdot 2.1 \text{ dm})}$ | <input type="text"/> |
| 13. | $(5.3 \text{ m})(1.3 \text{ m})$ | <input type="text"/> | 18. | $\frac{2.45 \text{ mol}}{1.25 \text{ liter}}$ | <input type="text"/> |
| 14. | $\frac{(340 \text{ km})}{(175 \text{ s})}$ | <input type="text"/> | 19. | $\frac{45.6 \text{ mg}}{21.4 \text{ mg}}$ | <input type="text"/> |
| 15. | $\frac{(25 \text{ kg})(6.0 \text{ m})}{(15 \text{ s})(20 \text{ s})}$ | <input type="text"/> | 20. | $\frac{120.1 \text{ g}}{12 \text{ kg}}$ | <input type="text"/> |
| 16. | $(21 \text{ cm})(30 \text{ cm})(15 \text{ cm})$ | <input type="text"/> | 21. | $\frac{1400 \text{ J}}{(45 \text{ g})(37 \text{ }^\circ\text{C})}$ | <input type="text"/> |

Directions: Solve each of the following expressions for x . ($x = ?$)

- | | | | | | |
|-----|-----------------------------|----------------------|-----|-------------------------|----------------------|
| 22. | $2x - 15 = 8$ | <input type="text"/> | 25. | $x + 8 = 23FG$ | <input type="text"/> |
| 23. | $4x = 3y + 8$ (if $y = 2$) | <input type="text"/> | 26. | $\frac{18KRx}{F^2} = E$ | <input type="text"/> |
| 24. | $H = WQx$ | <input type="text"/> | 27. | $15G - x = U$ | <input type="text"/> |
| | | <input type="text"/> | | | <input type="text"/> |

Directions: For those values in standard form, express in scientific notation. For those terms in scientific notation, express in standard form.

- | | | | | | |
|-----|-----------------------|-------|-----|----------------------|-------|
| 28. | 5.46×10^4 | _____ | 33. | 213 000 000 000 | _____ |
| 29. | 2.1×10^{-2} | _____ | 34. | 4.5×10^{-9} | _____ |
| 30. | 0.00341 | _____ | 35. | 1.0×10^{-8} | _____ |
| 31. | 240 100 | _____ | 36. | 0.0001200 | _____ |
| 32. | 7.32×10^{-1} | _____ | 37. | 340 001 | _____ |

Directions: Using the exponential expression function (EE, EXP, $x10^x$) on your calculator to calculate the following.

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|-----|--|----------------------|-----|--|----------------------|
| 38. | $(6.02 \times 10^{23})(3.65 \times 10^2)$ | <input type="text"/> | 41. | $\frac{1.0 \times 10^{-14}}{4.2 \times 10^{-6}}$ | <input type="text"/> |
| 39. | $\frac{(1.4 \times 10^{-4})(3.2 \times 10^9)}{4.5 \times 10^{-5}}$ | <input type="text"/> | 42. | $\frac{(-1.6 \times 10^5)(-2.4 \times 10^{15})}{8.9 \times 10^3}$ | <input type="text"/> |
| 40. | $(-4.12 \times 10^{-4})(7.33 \times 10^{12})$ | <input type="text"/> | 43. | $\frac{(6.02 \times 10^{23})(-1.42 \times 10^{-15})}{6.54 \times 10^{-6}}$ | <input type="text"/> |