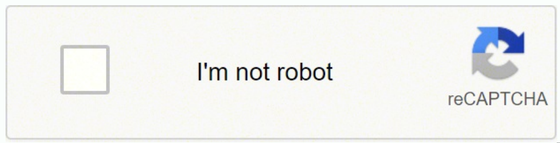


Open

# Chemistry metric conversion practice worksheet

Name : _____ Score : _____

Teacher : _____ Date : _____

## Converting English and Metric

| | | | | | |
|---|---|---|---|---|---|
| 1 ) | _____ | ounces | = | 10.5 | grams |
| 2 ) | _____ | mph | = | 14.5 | kmph |
| 3 ) | 9.5 | cubic yards | = | _____ | cubic meters |
| 4 ) | _____ | pounds | = | 4.5 | kilograms |
| 5 ) | 8.5 | fluid ounces | = | _____ | milliliters |
| 6 ) | 20 | square yards | = | _____ | square meters |
| 7 ) | _____ | teaspoons | = | 11.5 | milliliters |
| 8 ) | _____ | cups | = | 14 | liters |
| 9 ) | _____ | square inches | = | 3.5 | square centimeters |
| 10 ) | _____ | inches | = | 9 | centimeters |
| 11 ) | 13.5 | cubic feet | = | _____ | cubic meters |
| 12 ) | 2 | feet | = | _____ | meters |
| 13 ) | 15 | cubic inches | = | _____ | milliliters |
| 14 ) | 25 | cups | = | _____ | liters |
| 15 ) | _____ | teaspoons | = | 19 | milliliters |
| 16 ) | _____ | miles | = | 1 | kilometers |
| 17 ) | 4 | tablespoons | = | _____ | milliliters |
| 18 ) | 22 | tablespoons | = | _____ | milliliters |
| 19 ) | _____ | gallons | = | 13 | liters |
| 20 ) | 6 | gallons | = | _____ | liters |

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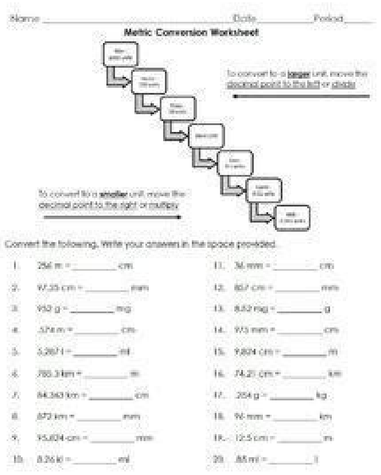

Name _____ Date _____ Period ____

**Metric Conversion Worksheet**

To convert to a **larger** unit, move the decimal point to the left or divide

To convert to a **smaller** unit, move the decimal point to the right or multiply

Convert the following. Write your answers in the space provided.

1. 256 m = _____ cm
2. 97.35 cm = _____ mm
3. 952 g = _____ mg
4. 574 m = _____ cm
5. 5.2671 = _____ ml
6. 788.3 km = _____ m
7. 84,363 km = _____ cm
8. 672 km = _____ mm
9. 95,024 cm = _____ mm
10. 8.2610 = _____ ml
11. 36 mm = _____ cm
12. 80.7 cm = _____ mm
13. 8.52 mg = _____ g
14. 97.5 mm = _____ cm
15. 9.824 cm = _____ m
16. 74.21 cm = _____ km
17. 264 g = _____ kg
18. 90 mm = _____ km
19. 12.5 cm = _____ m
20. 85 ml = _____ l

## METRIC CONVERSIONS

V. Fill in the blanks with the correct metric equivalent.

1. 1000 g = 1 _____
2. 0.1 g = 1 _____
3. 100 g = 1 _____
4. 10 g = 1 _____
5. 0.001 g = 1 _____
6. 0.01 g = 1 _____
7. 10.0 m = 1 _____
8. 1000 m = 1 _____
9. 0.001 m = 1 _____

VI. Convert the following metric numbers. (Remember: DO NOT drop final zeroes from your numbers.)

10. 20 mg = _____ g
11. 23,456 g = _____ kg
12. 14 g = _____ cg
13. 2.3 mg = _____ g
14. 70 cg = _____ g
15. 45 g = _____ mg
16. 2.6 kg = _____ g
17. 0.5 g = _____ dg
18. 0.004 kg = _____ g
19. 1 x $10^3$ m = _____ km
20. 1 x $10^{-3}$ m = _____ mm
21. 55 m = _____ cm
22. 4.5 cm = _____ mm
23. 0.89 mm = _____ m
24. 0.005 m = _____ mm
25. 1.14 L = _____ $cm^3$
26. 15 mL = _____ $cm^3$
27. 1.40 cL = _____ cc
28. 0.015 hL = _____ L
29. 8.2 mL = _____ L
30. 2,000 kg = _____ g
31. 0.053 g = _____ mg
32. 0.0512 cg = _____ kg
33. 101.53 cg = _____ g
34. 540,000 mg = _____ g
35. 45,000 cm = _____ km

VII. Solve the following equations. Be sure to convert all units to the same base! Show your work.

36. 16 g - 50 mg = _____ g

37. 0.017 L - 17 mL = _____ mL

38. 320 mm + 5.4 cm + 1.689 m = _____ m

39. 53 cm + 3 m = _____ mm

40. 0.054 g - 54 mg = _____ g

# Mr. Bausback's Chemistry Reference Sheet

## Formulas

**Ideal Gas Law:** $PV = nRT \qquad \frac{P_1V_1}{n_1T_1} = \frac{P_2V_2}{n_2T_2}$

**Dalton's Law:** $P_{total} = P_A + P_B + P_C + \ldots$

**Temperature:** $K = {}^\circ C + 273$

${}^\circ C = 0.56({}^\circ F - 32) \qquad {}^\circ F = 1.8 \times {}^\circ C + 32$

**H⁺ Concentration:**

$\text{pH} = -\log[\text{H}^+] \qquad K_w = [\text{H}^+][\text{OH}^-] = 10^{-14}$

**Freezing (and Boiling) Point Depression:** $\Delta T_f = mK_f i$

**Calorimeters:** $q = m \times C_p \times \Delta T$

**Thermodynamics:** $\Delta G = \Delta H - T\Delta S \qquad \Delta G^\circ = -RT\ln K$

**Energy & Light:** $E = mc^2 \qquad E = h\nu = hc/\lambda \qquad c = \lambda\nu$

**Concentration:** M = mols solute/L soln m = mols solute/Kg solvent

## Constants

**At STP:** $1\,atm, 0^\circ C \qquad 1\,mol\,gas = 22.4\,L$

**Pressure:** $1\,atm = 760\,mmHg(torr) = 14.7\,psi = 101.3kPa$

**Gas Constant:** $R = 0.0821\frac{L \times atm}{mol \times K} = 8.31\frac{J}{mol \times K}$

**In water:** $K_f = 1.86^\circ C/m \qquad K_b = 0.512^\circ C/m$

**Energy:** $4.184\,J = 1\,cal$

**Specific Heat of Water:** $C_p = 4.184 J/g^\circ C$

**Speed of light in a vacuum:** $c = 3.00 \times 10^8 m/s$

**Planck's Constant:** $h = 6.63 \times 10^{-34} Js$

**Density of water:** $1.0\,g = 1.0\,mL = 1.0\,cm^3$

**Avogadro's Number:** $1\,mol = 6.022 \times 10^{23}\,molecules$

## Conversions

| Metric to Metric Conversions | | | English to Metric Conversions | | |
|---|---|---|---|---|---|
| 1 km | = | 1000 m | 1 mile | = | 1.609 km |
| 100 cm | = | 1 m | 1 in | = | 2.54 cm |
| 1000 mm | = | 1 m | 1 m | = | 39.37 in |
| $10^9$ nm | = | 1 m | 1 ft³ | = | 28.32 L |
| 1 cm³ | = | 1 mL | 1 L | = | 1.057 qt |
| 1000 mL | = | 1 L | 1 lb | = | 453.6 g |
| 1000 g | = | 1 kg | 1 g | = | 0.03527 oz |
| 1000 mg | = | 1 g | | | |
| $10^9$ng | = | 1g | **English to English Conversions** | | |
| **English to English Conversions** | | | 1 ft | = | 12 in |
| 1 lb | = | 16 oz | 1 yd | = | 3 ft |
| 1 quart | = | 4 cups | 1 mile | = | 5280 ft |
| 1 pint | = | 2 cups | 1 gallon | = | 4 qt |

## Polyatomic Ions

| | | | |
|---|---|---|---|
| ammonium | $NH_4^+$ | bisulfite (hydrogen sulfite) | $HSO_3^-$ |
| nitrate | $NO_3^-$ | hydrogen phosphate | $HPO_4^{2-}$ |
| sulfate | $SO_4^{2-}$ | dihydrogen phosphate | $H_2PO_4^-$ |
| phosphate | $PO_4^{3-}$ | phosphite | $PO_3^{3-}$ |
| carbonate | $CO_3^{2-}$ | bicarbonate (hydrogen carbonate) | $HCO_3^-$ |
| hydroxide | $OH^-$ | oxalate | $C_2O_4^{2-}$ |
| chromate | $CrO_4^{2-}$ | acetate | $C_2H_3O_2^-$ |
| dichromate | $Cr_2O_7^{2-}$ | cyanide | $CN^-$ |
| nitrite | $NO_2^-$ | perchlorate | $ClO_4^-$ |
| hypochlorite | $ClO^-$ | chlorate | $ClO_3^-$ |
| sulfite | $SO_3^{2-}$ | bisulfate (hydrogen sulfate) | $HSO_4^-$ |
| permanganate | $MnO_4^-$ | chlorite | $ClO_2^-$ |

Length and Distance Conversion
Mixed 1
Math Worksheet 1

**Name:**_____

Solve the unit conversion problem by cross cancelling units.
Round your answers to the nearest whole unit if necessary.

| | |
|---|---|
| 12 centimeters as inches = | $\frac{12\text{ cm}}{1} \times \frac{1\text{ in}}{2.54\text{ cm}} = 5\text{ in}$ |
| 8 inches as centimeters = | $\frac{8\text{ in}}{1} \times \frac{2.54\text{ cm}}{1\text{ in}} = 20\text{ cm}$ |
| 75 centimeters as inches = | $\frac{75\text{ cm}}{1} \times \frac{1\text{ in}}{2.54\text{ cm}} = 30\text{ in}$ |
| 18 centimeters as inches = | $\frac{18\text{ cm}}{1} \times \frac{1\text{ in}}{2.54\text{ cm}} = 7\text{ in}$ |
| 12 centimeters as inches = | $\frac{12\text{ cm}}{1} \times \frac{1\text{ in}}{2.54\text{ cm}} = 5\text{ in}$ |
| 45 centimeters as inches = | $\frac{45\text{ cm}}{1} \times \frac{1\text{ in}}{2.54\text{ cm}} = 18\text{ in}$ |
| 35 centimeters as inches = | $\frac{35\text{ cm}}{1} \times \frac{1\text{ in}}{2.54\text{ cm}} = 14\text{ in}$ |
| 46 inches as centimeters = | $\frac{46\text{ in}}{1} \times \frac{2.54\text{ cm}}{1\text{ in}} = 117\text{ cm}$ |
| 1 inches as centimeters = | $\frac{1\text{ in}}{1} \times \frac{2.54\text{ cm}}{1\text{ in}} = 3\text{ cm}$ |
| 98 inches as centimeters = | $\frac{98\text{ in}}{1} \times \frac{2.54\text{ cm}}{1\text{ in}} = 249\text{ cm}$ |

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