

Name: _____
Hour: _____ Date: _____

Chemistry: *Atoms, Mass, and the Mole*

Use appropriate conversion factors and unit cancellation to solve the following problems. In order to get full credit, you must show the set-up and include units in all quantities.

1. Find the number of atoms of phosphorus (P) in 3.44 moles of phosphorus.
2. What is the mass of 0.38 moles of cobalt (Co)?
3. How many moles of nickel (Ni) is 3.88×10^{25} atoms of nickel?
4. How many atoms is 3.75 moles of iron (Fe)?
5. Find the number of moles of sodium (Na) in 145 g of sodium.
6. How many moles is 0.55 g of magnesium (Mg)?
7. If you have 7.22×10^{23} atoms of chromium (Cr), how many moles of chromium do you have?
8. What mass of tungsten (W) is 35 moles of tungsten?
9. How many atoms is 5.2 moles of titanium (Ti)?

10. How many moles of iron (Fe) is 5.98×10^{24} atoms of iron?
11. What mass of molybdenum (Mo) is 6.68 moles of molybdenum?
12. How many moles is 586 g of rhenium (Re)?
13. How many atoms of palladium (Pd) is 400 g of palladium?
14. Find the mass of 4.55×10^{28} atoms of vanadium (V).
15. Find the mass of 4.77×10^{22} atoms of scandium (Sc).
16. Find the number of atoms in 36 g of germanium (Ge).
17. How many atoms are in 8500 g of selenium (Se)?
18. Find the mass of 1.43×10^{28} atoms of polonium (Po).

Answers:

1. 2.07×10^{24} atoms P	7. 1.20 mol Cr	13. 2.26×10^{24} atoms Pd
2. 22.4 g Co	8. 6433 g W	14. 3.85×10^6 g V
3. 64.4 mol Ni	9. 3.13×10^{24} atoms Ti	15. 3.6 g Sc
4. 2.26×10^{24} atoms Fe	10. 9.93 mol Fe	16. 3.0×10^{23} atoms Ge
5. 6.3 mol Na	11. 641 g Mo	17. 6.48×10^{25} atoms Se
6. 0.023 mol Mg	12. 3.15 mol Re	18. 4.96×10^6 g Po