

# ATOMS TEST REVIEW

\*\*\*SHOW WORK FOR ANY CALCULATIONS!\*\*\*

The table below contains information about several elements. In each case, enough information has been provided for you to fill in the blanks.

Isotope Name	Nuclear Symbol	Atomic Number	Mass Number	# of Protons	# of Electrons	# of Neutrons
1. calcium-40						
2.		12	24			
3.				1		2
4.	${}^{197}_{79}\text{Au}$					
5.					26	30

6. Calculate the average atomic mass for neon if its abundance in nature is 90.5% neon-20, 0.3% neon-21, and 9.2% neon-22.
7. Calculate the average atomic mass of silver if 13 out of 25 atoms are silver-107 and 12 out of 25 atoms are silver-109.

SOLVE THE FOLLOWING LIGHT & ENERGY PROBLEMS:

8. Find the energy of an infrared photon whose frequency is  $2.0 \times 10^{12}$  Hz.
9. What is the wavelength of a red light wave whose frequency is  $4.3 \times 10^{14}$  Hz?
10. Calculate the frequency of an X-ray wave that has a wavelength of 9.2 nm.
11. What is the energy of a cosmic ray photon whose wavelength is 2.0 pm?
12. Find the frequency of a microwave that carries  $3.4 \times 10^{-25}$  J of energy.

DRAW ORBITAL DIAGRAMS FOR THE FOLLOWING ELEMENTS:

13. Mg
14. Si
15. Ti

WRITE LONGHAND ELECTRON CONFIGURATIONS FOR THE FOLLOWING ELEMENTS:

16. N
17. K
18. Cr

WRITE SHORTHAND ELECTRON CONFIGURATIONS FOR THE FOLLOWING ELEMENTS:

19. Sb
20. Bi
21. Tc
22. Ga

