

Practice:

Neon has three isotopes. Neon-20 has a mass of 19.992 amu and abundance of 90.48%, Neon-21 has a mass of 20.994 amu and an abundance of 0.27%, and Neon-22 has a mass of 21.991 amu and an abundance of 9.25%. What is the average atomic mass for neon? Show formula, set-up, and answer with units.

$$\begin{aligned} \text{avg. at. mass} &= (\text{mass} \times \text{abund})_1 + (\text{mass} \times \text{abund})_2 \\ &= (19.992 \times .9048) + (20.994 \times .0027) + (21.991 \times .0925) \\ &= 20.180 \text{ amu or } \\ &\quad \text{g/mol} \end{aligned}$$

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Practice:

Copper used in electric wires comes in two flavors (isotopes): ^{63}Cu and ^{65}Cu . The average atomic mass between these two isotopes is 63.546 amu. Calculate the percent abundance of each isotope.

$$\begin{aligned} &\text{Cu-63 } 73\% \quad \text{Cu-65 } 27\% \\ 63.546 &= 63x + 65y & x + y &= 1 & x &= 1 - y \\ 63.546 &= 63(1 - y) + 65y & \frac{0.546}{2} &= \frac{2y}{2} \\ 63.546 &= 63 - 63y + 65y & & & & \\ 63.546 &= 63 + 2y & & & & \\ -63 & \quad -63 & & & & .273 \end{aligned}$$

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Practice:

Give the number of protons, neutrons and electrons in the following:

Isotope	Protons	Neutrons	Electrons
uranium-235	92	143	92
59 $^{59}_{28}\text{Ni}$	28	31	28

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Practice:

How would you represent an isotope of carbon with seven neutrons?
(Write 2 ways)

carbon-13

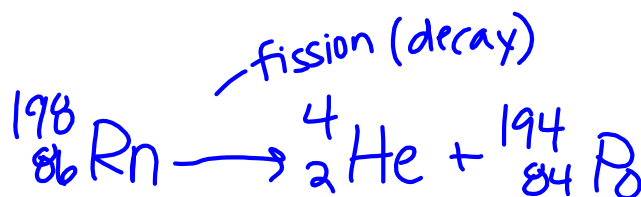
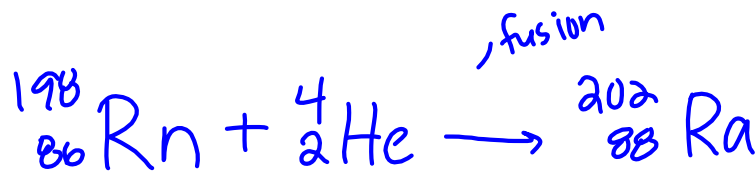


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Practice:

bombardment

Write the complete equation for the alpha fusion of radon - 198.

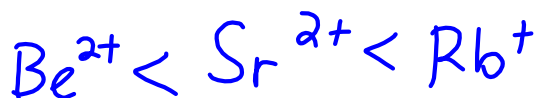
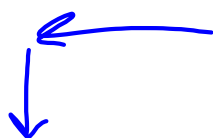


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Practice:

Arrange the following cations (positive ions) in order of radius: Rb^+ , Be^{2+} , and Sr^{2+} .

increasing ionic



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Practice:

Arrange the following elements in each set in order of decreasing ionization energy: Si, Cl, F



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Practice:

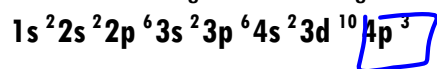
Arrange the following elements in order of decreasing atomic radius: O, N, F



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Practice:

Determine which element has the following electron configuration:

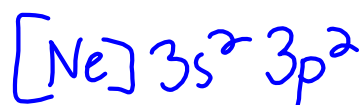


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Practice:

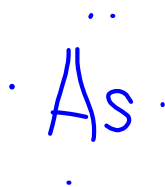
What is the noble-gas configuration for silicon?



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Practice:

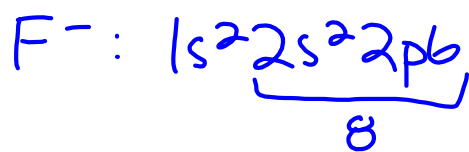
Draw the electron-dot structure for arsenic.



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Practice:

Write the electron configuration for an ion of Fluorine (F⁻).



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Practice:

Draw the orbital diagram for P.



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