

Solutions

Each answer shows the steps, then the **result**.

2.1

- In the number of neutrons (same protons, different mass)

2.2

- weight each isotope's mass by its fractional abundance:

$$\bar{m} = \sum f_i m_i = 0.60(10) + 0.40(11)$$

- $\bar{m} = \mathbf{10.4}$ u

2.3

- Its relative abundance

2.4

- weight each isotope's mass by its fractional abundance:

$$\bar{m} = \sum f_i m_i = 0.50(20) + 0.50(22)$$

- $\bar{m} = \mathbf{21}$ u

3.1 B

- the same number of protons

3.2 B

- $0.90(20) + 0.10(22) = 20.2$

3.3

(a)

- weight each isotope's mass by its fractional abundance:

$$\bar{m} = \sum f_i m_i = 0.20(10) + 0.80(11)$$

- $\bar{m} = \mathbf{10.8}$ u

(b)

- Closer to boron-11, since it is more abundant

3.4

(a)

- weight each peak's mass by its abundance:

$$\bar{m} = \sum f_i m_i = 0.69(63) + 0.31(65)$$

- $\bar{m} = \mathbf{63.6}$ u

(b)

- Copper (Cu)