

Calculating Relative Atomic Mass

<https://gemini.google.com/app/b2d4fbfc50c8afc7>

Response: To find the relative atomic mass of element **X**, calculate the weighted average of the mass numbers based on their relative percentage abundances:

$$\text{Relative Atomic Mass} = \frac{\sum(\text{Mass Number} \times \text{Percentage Abundance})}{100}$$

- **Isotope 1:** $20 \times 99 = 1980$
- **Isotope 2:** $21 \times 0.75 = 15.75$
- **Isotope 3:** $22 \times 0.25 = 5.5$

Summing these values together:

$$1980 + 15.75 + 5.5 = 2001.25$$

Dividing by 100 to get the final weighted average:

$$\text{Relative Atomic Mass} = \frac{2001.25}{100} = 20.0125$$

The correct option is **(2) 20.0125**.
