

Name : \_\_\_\_\_ Date : \_\_\_\_\_



# Atomic Mass Worksheet



Calculate the average atomic masses. Round all answers to two decimal places.

- 1) What is the atomic mass of hafnium (Hf) if, out of every 100 atoms, 5 have a mass of 176, 19 have a mass of 177, 27 have a mass of 178, 14 have a mass of 179, and 35 have a mass of 180?
- 2) Calculate the average atomic mass of gold (Au) with the 50% being  $^{197}\text{Au}$  and 50% being  $^{198}\text{Au}$ .
- 3) Calculate the average atomic mass of lithium (Li), which occurs  $^6\text{Li}$  (abundance 7.30%) and  $^7\text{Li}$  (abundance 92.70%).
- 4) Iodine is 80%  $^{127}\text{I}$ , 17%  $^{126}\text{I}$ , and 3%  $^{128}\text{I}$ . Calculate the average atomic mass of iodine.



# Atomic Mass Worksheet



## Answers

- 1) What is the atomic mass of hafnium (Hf) if, out of every 100 atoms, 5 have a mass of 176, 19 have a mass of 177, 27 have a mass of 178, 14 have a mass of 179, and 35 have a mass of 180?

$$\text{Average atomic mass of Hf} = (176 \times 0.05) + (177 \times 0.19) + (178 \times 0.27) + (179 \times 0.14) + (180 \times 0.35) = 8.8 + 33.63 + 48.06 + 25.06 + 63 = 178.55 \text{ amu}$$

- 2) Calculate the average atomic mass of gold (Au) with the 50% being  $^{197}\text{Au}$  and 50% being  $^{198}\text{Au}$ .

$$\text{Average atomic mass of Au} = (197 \times 0.5) + (198 \times 0.5) = 98.5 + 99 = 197.5 \text{ amu}$$

- 3) Calculate the average atomic mass of lithium (Li), which occurs  $^6\text{Li}$  (abundance 7.30%) and  $^7\text{Li}$  (abundance 92.70%).

$$\text{Average atomic mass of Li} = (6 \times 0.073) + (7 \times 0.9270) = 0.438 + 6.489 = 6.927 \text{ amu}$$

- 4) Iodine is 80%  $^{127}\text{I}$ , 17%  $^{126}\text{I}$ , and 3%  $^{128}\text{I}$ . Calculate the average atomic mass of iodine.

$$\text{Average atomic mass of B} = (10 \times 0.199) + (11 \times 0.801) = 1.99 + 8.811 = 10.801 \text{ amu}$$