Name : _____

Calculating Average Atomic Mass Worksheet

Answer the following questions.

1. Lithium has two natural isotopes: lithium-6 and lithium-7. Which is the most abundant if the average atomic mass of lithium is 6.941 amu, and why?

2. Calculate the average atomic mass of hafnium if, in every 100 atoms, 5 have a mass of 176, 19 weigh 177, 27 atoms weigh 178, 14 have a mass of 179, and 35 have a mass of 180?

3. Determine the average atomic mass of gold, with 50% being gold-197 and 50% being gold-198.

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

Name : _____

Calculating Average Atomic Mass Worksheet

Answers

1. Lithium has two natural isotopes: lithium-6 and lithium-7. Which is the most abundant if the average atomic mass of lithium is 6.941 amu, and why?

Lithium-7. This is because the average atomic mass of lithium is closer to 6 than 7.

2. Calculate the average atomic mass of hafnium if, in every 100 atoms, 5 have a mass of 176, 19 weigh 177, 27 atoms weigh 178, 14 have a mass of 179, and 35 have a mass of 180?

178.55 amu

Average atomic mass of hafnium = (176 x 0.05) + (177 x 0.19) + (178 x 0.27) + (179 x 0.14) + (180 x 0.35) = 8.8 + 33.63 + 48.06 + 25.06 + 63 = 178.55 amu

3. Determine the average atomic mass of gold, with 50% being gold-197 and 50% being gold-198.

197.5 amu

Average atomic mass of gold = (197 x 0.5) + (198 x 0.5) = 98.5 + 99 = 197.5 amu

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

126.86 amu

Average atomic mass of iodine = (127 x 0.8) + (126 x 0.17) + (128 x 0.03)
= 101.6 + 21.42 + 3.84 = 126.86 amu