Name : _____ Date : _____

Isotopes and Average Atomic Mass Worksheet

Determine the average atomic mass of the following isotopes.

1) 17% ^{126}I, 80% ^{127}I, and 3% ^{128}I

2) 98% ^{12}C and 2% ^{14}C

3) 99% ^{1}H, 0.8% ^{2}H, and 0.2% ^{3}H

4) 50% ^{197}Au and 50% ^{198}Au

5) 15% ^{55}Fe and 85% ^{56}Fe

6) 95% ^{14}N, 3% ^{15}N, and 2% ^{16}N

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Answers

1) 17% ^{126}I, 80% ^{127}I, and 3% ^{128}I

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

2) 98% ^{12}C and 2% ^{14}C

Average atomic mass of carbon = (12 x 0.98) + (14 x 0.02) = 11.76 + 0.28 = 12.04 amu

3) 99% ^{1}H, 0.8% ^{2}H, and 0.2% ^{3}H

Average atomic mass of hydrogen = (1 x 0.99) + (2 x 0.008) + (3 x 0.002) = 0.99 + 0.016 + 0.006 = 1.012 amu

4) 50% ^{197}Au and 50% ^{198}Au

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

5) 15% ^{55}Fe and 85% ^{56}Fe

Average atomic mass of iron = (55 x 0.15) + (56 x 0.85) = 8.25 + 47.6 = 55.85 amu

6) 95% ^{14}N, 3% ^{15}N, and 2% ^{16}N

Average atomic mass of nitrogen = (14 x 0.95) + (15 x 0.03) + (16 x 0.02) = 14.07 amu