

Exercise 2.1 Counting Subatomic Particles

1. Complete the table below (one column per isotope):

symbol	^{96}Ru	$^{135}\text{Ba}^{2+}$			
# protons				29	
# neutrons			20	36	36
# electrons			18		30
overall charge			-1	+2	0

2. For each of the following pairs of atoms, indicate which (if either) has more neutrons.

(a) ^{77}Se or ^{79}Br (b) ^{40}Ca or ^{40}Ar (c) ^{31}P or ^{32}S

3. There is one naturally occurring isotope of gold (Au). What is its mass number?

4.

(a) Rhenium (Re) has two naturally occurring isotopes: ^{185}Re and ^{187}Re with isotopic masses of 184.95 u and 186.96 u respectively. Which of these two isotopes has the higher natural abundance? Explain your choice.

(b) How many protons, neutrons and electrons does a neutral atom of ^{187}Re contain?

_____ protons

_____ neutrons

_____ electrons