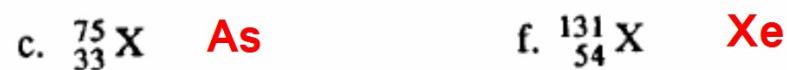


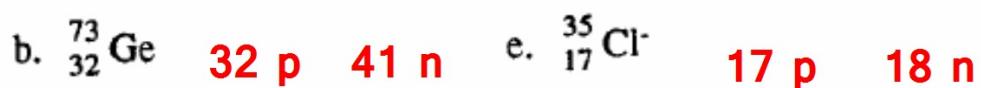
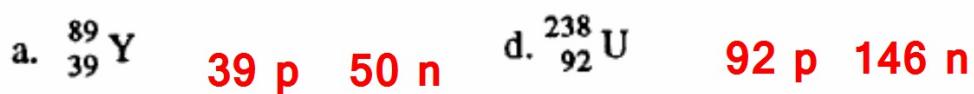
4. Identify each of the following elements:



5. Identify each of the following elements:



6. How many protons and neutrons are in each of the following elements?



7. How many protons and neutrons are in each of the following elements?

- | | | | | | |
|----------------------|-------------|--------------|----------------------|-------------|--------------|
| a. ^{227}Ac | 89 p | 138 n | d. ^{251}Cf | 98 p | 153 n |
| b. ^{70}Ga | 31 p | 39 n | e. ^{239}Pu | 94 p | 145 n |
| c. ^{11}B | 5 p | 6 n | f. ^{64}Cu | 29 p | 35 n |

8. How many protons, neutrons and electrons are in each of the following ions?



9. How many protons, neutrons, and electrons are in each of the following?

- | | | | |
|--------------------------------|--------------------|-------------------------------|--------------------|
| a. $^{195}_{78}\text{Pt}^+$ | 78, 117, 77 | f. $^{56}_{26}\text{Fe}^{3+}$ | 26, 30, 23 |
| b. $^{93}_{41}\text{Nb}$ | 41, 52, 41 | g. $^{184}_{74}\text{W}$ | 74, 110, 74 |
| c. $^{40}_{18}\text{Ar}^-$ | 18, 22, 19 | h. $^{133}_{55}\text{Cs}^+$ | 55, 78, 54 |
| d. $^{16}_8\text{O}^{2-}$ | 8, 8, 10 | i. $^{28}_{14}\text{Si}^{3-}$ | 14, 14, 17 |
| e. $^{122}_{51}\text{Sb}^{2+}$ | 51, 71, 49 | | |

10. Fill in the missing information in the following table:

<u>Symbol</u>	<u>Protons</u>	<u>Neutrons</u>	<u>Electrons</u>	<u>Charge</u>
${}_{35}^{80}\text{Br}^-$	<u>35</u>	<u>45</u>	<u>36</u>	<u>-1</u>
${}_{35}^{90}\text{Br}^{5+}$	35	55	<u>30</u>	+5
${}_{56}^{137}\text{Ba}^{2+}$	56	<u>81</u>	54	<u>+2</u>
${}_{47}^{108}\text{Ag}^+$	<u>47</u>	<u>61</u>	<u>46</u>	<u>+1</u>
${}_{51}^{23}\text{V}^{5+}$	<u>23</u>	<u>28</u>	<u>18</u>	<u>+5</u>
${}_{27}^{59}\text{Co}^{2+}$	<u>27</u>	<u>32</u>	<u>25</u>	+2

11. Fill in the missing information in the following table:

<u>Symbol</u>	<u>Protons</u>	<u>Neutrons</u>	<u>Electrons</u>	<u>Charge</u>
$\frac{27}{13}\text{Al}^{3+}$	13	<u>14</u>	10	<u>+3</u>
$\frac{88}{38}\text{Sr}^{1+}$	<u>38</u>	<u>50</u>	<u>37</u>	+1
$\frac{65}{30}\text{Zn}^+$	30	35	<u>29</u>	<u>+1</u>
$\frac{35}{17}\text{Cl}^{2-}$	<u>17</u>	18	19	<u>-2</u>
$\frac{128}{52}\text{Te}^{3-}$	<u>52</u>	76	<u>55</u>	<u>-3</u>
$\frac{85}{37}\text{Rb}^{1+}$	<u>37</u>	<u>48</u>	<u>36</u>	+1