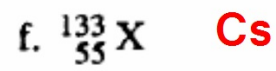
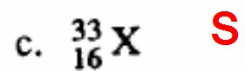
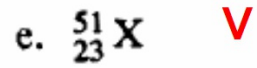
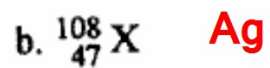
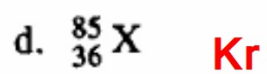
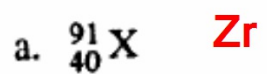
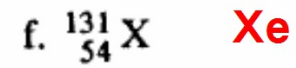
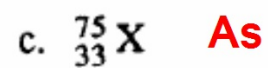
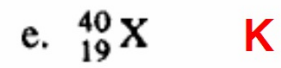
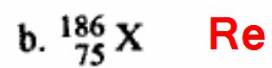
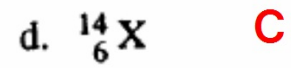
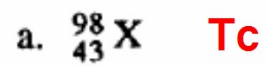


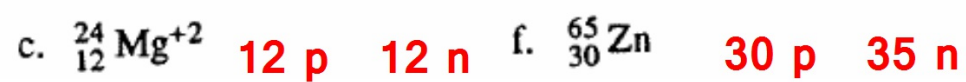
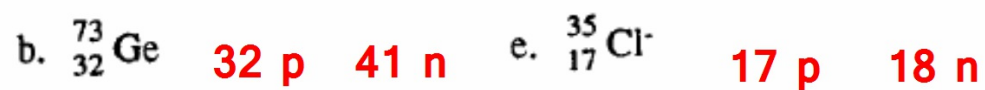
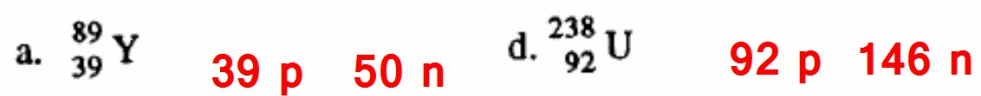
4. Identify each of the following elements:



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**

b. ^{70}Ga **31 p 39 n**

c. ^{11}B **5 p 6 n**

d. ^{251}Cf **98 p 153 n**

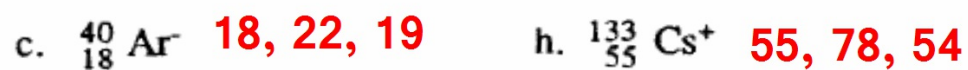
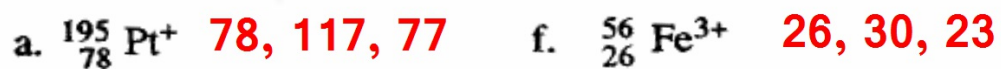
e. ^{239}Pu **94 p 145 n**

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?



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>
${}_{23}^{51}\text{V}^{5+}$	<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>
${}_{13}^{27}\text{Al}^{3+}$	13	<u>14</u>	10	<u>+3</u>
${}_{38}^{88}\text{Sr}^{1+}$	<u>38</u>	<u>50</u>	<u>37</u>	+1
${}_{30}^{65}\text{Zn}^{+}$	30	35	<u>29</u>	<u>+1</u>
${}_{17}^{35}\text{Cl}^{2-}$	<u>17</u>	18	19	<u>-2</u>
${}_{52}^{128}\text{Te}^{3-}$	<u>52</u>	76	<u>55</u>	<u>-3</u>
${}_{37}^{85}\text{Rb}^{1+}$	<u>37</u>	<u>48</u>	<u>36</u>	+1