

IPS Atoms and Periodic Table Pre Test

Name: _____

Class: _____

Date: _____

- Seven electrons in the outermost energy level is characteristic of a *metal*.

A. True
B. False
- The number of protons in an atom is called the *atomic mass*. _____
A. True
B. False
- A group of elements that has two electrons in its outer energy level is the _____.
A. alkaline earth metals
B. halogens
C. alkali metals
D. actinides
- The identity of an element is determined by the number of *protons*.

A. True
B. False
- The chart showing the classifications of elements according to their properties and increasing atomic numbers is called the *periodic table*. _____
A. True
B. False
- The process by which a solid changes directly to a gas without first becoming a liquid is called _____.
A. condensation
B. ionization
C. sublimation
D. evaporation
- Each energy level of an atom has a maximum number of _____ it can hold.
A. neutrons
B. quarks
C. protons
D. electrons

8. The ability of metals to reflect light is referred to as ____.
- A. luster
B. ductility
C. conductivity
D. malleability
9. Dot diagrams are used to represent ____.
- A. the structure of the nucleus
B. atomic number
C. isotopes
D. outer electrons
10. A chemical symbol represents the ____ of an element.
- A. name
B. structure
C. reaction
D. type
11. Elements that lie along the stair-step line of the periodic table are ____.
- A. liquids
B. metals
C. metalloids
D. radioactive
12. Atoms of the same element with different numbers of neutrons are called ____.
- A. metalloids
B. radioactive
C. transition elements
D. isotopes
13. A particle that moves around the nucleus is a(n) ____.
- A. proton
B. ion
C. neutron
D. electron
14. A certain atom has 26 protons, 26 electrons, and 30 neutrons. Its mass number is ____.
- A. 26
B. 30
C. 52
D. 56
15. The symbol for chlorine is *C*. _____
- A. True
B. False
16. At room temperature, most metals are ____.
- A. liquids
B. solids
C. radioactive
D. gases

17. Two isotopes of carbon are carbon-12 and carbon-14. These isotopes differ from one another by two *electrons*. _____
- A. True
B. False
18. Metals can be used as wire because they are ____.
- A. ductile
B. malleable
C. shiny
D. alloys
19. *Nonmetals* are poor conductors of heat and electricity. _____
- A. True
B. False
20. The symbol for fluorine is Fe. _____
- A. True
B. False
21. A very stable electron arrangement in the outer energy level is characteristic of noble gases.

- A. True
B. False
22. One proton and one electron are added to each element as you go across the periodic table.

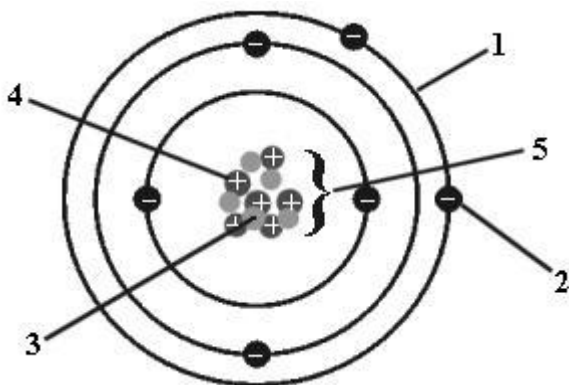
- A. True
B. False
23. Metals are good conductors of heat and electricity. _____
- A. True
B. False
24. If a neutral atom contains 21 protons and has an atomic mass of 45, how many neutrons does the atom contain?
- A. 3
B. 24
C. 21
D. 45

25. If a neutral atom contains 12 neutrons and has an atomic mass of 23, how many electrons does the atom contain?
- A. 12
 - B. 23
 - C. 24
 - D. 11

26. What is the atomic mass of the atom below?



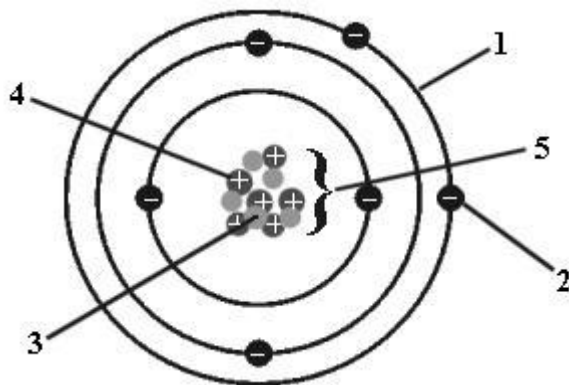
- A. 14 amu
 - B. 6 amu
 - C. 13 amu
 - D. 7 amu
27. Look at the diagram and then answer the question.



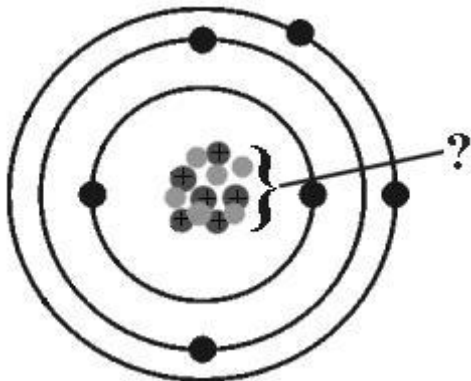
Which part of this atom is labeled with a 3?

- A. a neutron
- B. a nucleus
- C. an electron
- D. an element

28. Which part of the atom is labeled with a 2 in the diagram below?

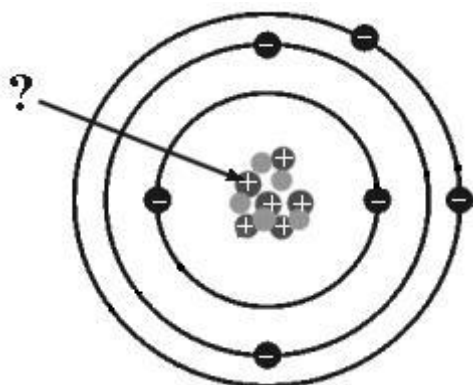


- A. a neutron
B. an electron
C. the nucleus
D. the orbital
29. Which part of this atom is indicated below?



- A. the orbital
B. the element
C. the nucleus
D. the electrons

30. Which part of the atom is indicated below?



- A. an electron
 B. an orbital
 C. a neutron
 D. a proton
31. Which statement is true about **elements**?
- A. Each element contains only one kind of atom.
 B. There are only five known elements.
 C. All elements are metallic.
 D. Elements are made from mixtures of molecules.
32. Use the periodic table below to answer the question.

1 1 H 1.01																	18 2 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.8	6 C 12.0	7 N 14.0	8 O 16.0	9 F 19.0	10 Ne 20.2
11 Na 23.0	12 Mg 24.3											13 Al 27.0	14 Si 28.1	15 P 31.0	16 S 32.0	17 Cl 35.5	18 Ar 40.0
19 K 39.1	20 Ca 40.1	21 Sc 45.0	22 Ti 47.9	23 V 51.0	24 Cr 52.0	25 Mn 55.0	26 Fe 55.9	27 Co 59.0	28 Ni 58.7	29 Cu 63.6	30 Zn 65.4	31 Ga 69.7	32 Ge 72.6	33 As 74.9	34 Se 79.0	35 Br 80.0	36 Kr 83.8
37 Rb 85.5	38 Sr 87.6	39 Y 88.9	40 Zr 91.2	41 Nb 92.9	42 Mo 95.9	(98)	44 Ru 101	45 Rh 103	46 Pd 106	47 Ag 108	48 Cd 112	49 In 115	50 Sn 119	51 Sb 122	52 Te 128	53 I 127	54 Xe 131
55 Cs 133	56 Ba 137	57 La 139	72 Hf 179	73 Ta 181	74 W 184	75 Re 186	76 Os 190	77 Ir 192	78 Pt 195	79 Au 197	80 Hg 201	81 Tl 204	82 Pb 207	83 Bi 209	84 Po (209)	85 At 210	86 Rn 222
87 Fr 223	88 Ra 226	89 Ac 227															

Which pair of elements has the most similar electron configuration in their outer shells?

- A. Na and Rb
 B. B and C
 C. H and He
 D. N and Cl

33. Use the periodic table below to answer the question.

1 1 H 1.01																	18 2 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.8	6 C 12.0	7 N 14.0	8 O 16.0	9 F 19.0	10 Ne 20.2
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19 K 39.1	20 Ca 40.1	21 Sc 45.0	22 Ti 47.9	23 V 51.0	24 Cr 52.0	25 Mn 55.0	26 Fe 55.9	27 Co 59.0	28 Ni 58.7	29 Cu 63.6	30 Zn 65.4	31 Ga 69.7	32 Ge 72.6	33 As 74.9	34 Se 79.0	35 Br 80.0	36 Kr 83.8
37 Rb 85.5	38 Sr 87.6	39 Y 88.9	40 Zr 91.2	41 Nb 92.9	42 Mo 95.9	43 Tc (98)	44 Ru 101	45 Rh 103	46 Pd 106	47 Ag 108	48 Cd 112	49 In 115	50 Sn 119	51 Sb 122	52 Te 128	53 I 127	54 Xe 131
55 Cs 133	56 Ba 137	57 La 139	72 Hf 179	73 Ta 181	74 W 184	75 Re 186	76 Os 190	77 Ir 192	78 Pt 195	79 Au 197	80 Hg 201	81 Tl 204	82 Pb 207	83 Bi 209	84 Po (209)	85 At 210	86 Rn 222
87 Fr 223	88 Ra 226	89 Ac 227															

Which pair of elements are most likely to combine to form a compound, due to their number of valence electrons?

- A. Al and Si
 - B. N and As
 - C. Be and Ar
 - D. Mg and O
34. Use the periodic table below to answer the question.

1 1 H 1.01																	18 2 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.8	6 C 12.0	7 N 14.0	8 O 16.0	9 F 19.0	10 Ne 20.2
11 Na 23.0	12 Mg 24.3											13 Al 27.0	14 Si 28.1	15 P 31.0	16 S 32.0	17 Cl 35.5	18 Ar 40.0
19 K 39.1	20 Ca 40.1	21 Sc 45.0	22 Ti 47.9	23 V 51.0	24 Cr 52.0	25 Mn 55.0	26 Fe 55.9	27 Co 59.0	28 Ni 58.7	29 Cu 63.6	30 Zn 65.4	31 Ga 69.7	32 Ge 72.6	33 As 74.9	34 Se 79.0	35 Br 80.0	36 Kr 83.8
37 Rb 85.5	38 Sr 87.6	39 Y 88.9	40 Zr 91.2	41 Nb 92.9	42 Mo 95.9	43 Tc (98)	44 Ru 101	45 Rh 103	46 Pd 106	47 Ag 108	48 Cd 112	49 In 115	50 Sn 119	51 Sb 122	52 Te 128	53 I 127	54 Xe 131
55 Cs 133	56 Ba 137	57 La 139	72 Hf 179	73 Ta 181	74 W 184	75 Re 186	76 Os 190	77 Ir 192	78 Pt 195	79 Au 197	80 Hg 201	81 Tl 204	82 Pb 207	83 Bi 209	84 Po (209)	85 At 210	86 Rn 222
87 Fr 223	88 Ra 226	89 Ac 227															

What is the atomic mass of calcium, Ca?

- A. 10
- B. 40
- C. 20
- D. 2

35. Use the periodic table below to answer the question.

1 H 1.01																	18 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.8	6 C 12.0	7 N 14.0	8 O 16.0	9 F 19.0	10 Ne 20.2
11 Na 23.0	12 Mg 24.3											13 Al 27.0	14 Si 28.1	15 P 31.0	16 S 32.0	17 Cl 35.5	18 Ar 40.0
19 K 39.1	20 Ca 40.1	21 Sc 45.0	22 Ti 47.9	23 V 51.0	24 Cr 52.0	25 Mn 55.0	26 Fe 55.9	27 Co 59.0	28 Ni 58.7	29 Cu 63.6	30 Zn 65.4	31 Ga 69.7	32 Ge 72.6	33 As 74.9	34 Se 79.0	35 Br 80.0	36 Kr 83.8
37 Rb 85.5	38 Sr 87.6	39 Y 88.9	40 Zr 91.2	41 Nb 92.9	42 Mo 95.9	43 Tc (98)	44 Ru 101	45 Rh 103	46 Pd 106	47 Ag 108	48 Cd 112	49 In 115	50 Sn 119	51 Sb 122	52 Te 128	53 I 127	54 Xe 131
55 Cs 133	56 Ba 137	57 La 139	72 Hf 179	73 Ta 181	74 W 184	75 Re 186	76 Os 190	77 Ir 192	78 Pt 195	79 Au 197	80 Hg 201	81 Tl 204	82 Pb 207	83 Bi 209	84 Po 209	85 At 210	86 Rn 222
87 Fr 223	88 Ra 226	89 Ac 227															

Labels below the table:
 green: under H, Li, Na, K, Rb, Cs, Fr
 orange: under Be, Mg, Ca, Sr, Ba, Ra
 pink: under Ti, Zr, Hf, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Sc, Y, Ac
 blue: under F, Cl, Br, I, At
 yellow: under He, Ne, Ar, Kr, Xe, Rn

What is the name of the group or family of elements that is shaded in blue?

- A. halogens
- B. alkali metals
- C. noble gases
- D. transition elements

36. Use the periodic table below to answer the question.

1 H 1.01																	2 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.8	6 C 12.0	7 N 14.0	8 O 16.0	9 F 19.0	10 Ne 20.2
11 Na 23.0	12 Mg 24.3											13 Al 27.0	14 Si 28.1	15 P 31.0	16 S 32.0	17 Cl 35.5	18 Ar 40.0
19 K 39.1	20 Ca 40.1	21 Sc 45.0	22 Ti 47.9	23 V 51.0	24 Cr 52.0	25 Mn 55.0	26 Fe 55.9	27 Co 59.0	28 Ni 58.7	29 Cu 63.6	30 Zn 65.4	31 Ga 69.7	32 Ge 72.6	33 As 74.9	34 Se 79.0	35 Br 80.0	36 Kr 83.8
37 Rb 85.5	38 Sr 87.6	39 Y 88.9	40 Zr 91.2	41 Nb 92.9	42 Mo 95.9	43 Tc (98)	44 Ru 101	45 Rh 103	46 Pd 106	47 Ag 108	48 Cd 112	49 In 115	50 Sn 119	51 Sb 122	52 Te 128	53 I 127	54 Xe 131
55 Cs 133	56 Ba 137	57 La 139	72 Hf 179	73 Ta 181	74 W 184	75 Re 186	76 Os 190	77 Ir 192	78 Pt 195	79 Au 197	80 Hg 201	81 Tl 204	82 Pb 207	83 Bi 209	84 Po 209	85 At 210	86 Rn 222
87 Fr 223	88 Ra 226	89 Ac 227															

Labels below the table:
 green: elements 1, 3, 11, 19, 37, 55, 87
 orange: elements 2, 4, 12, 20, 38, 56, 88
 pink: elements 21-30, 39-48, 49-58, 89-98
 blue: elements 17, 35, 53, 81, 85
 yellow: elements 18, 36, 54, 82, 86

What is the name of the group or family of elements that is shaded in green?

- A. halogens
 - B. alkali metals
 - C. noble gases
 - D. transition elements
37. To which group of elements does Bromine, Br, belong?

1 H 1.01																	2 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.8	6 C 12.0	7 N 14.0	8 O 16.0	9 F 19.0	10 Ne 20.2
11 Na 23.0	12 Mg 24.3											13 Al 27.0	14 Si 28.1	15 P 31.0	16 S 32.0	17 Cl 35.5	18 Ar 40.0
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55 Cs 133	56 Ba 137	57 La 139	72 Hf 179	73 Ta 181	74 W 184	75 Re 186	76 Os 190	77 Ir 192	78 Pt 195	79 Au 197	80 Hg 201	81 Tl 204	82 Pb 207	83 Bi 209	84 Po 209	85 At 210	86 Rn 222
87 Fr 223	88 Ra 226	89 Ac 227															

- A. noble gases
- B. alkali metals
- C. transition metals
- D. halogens

38. What is the name of the group on the periodic table below that is shaded in yellow?

1 H 1.01																	18 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.8	6 C 12.0	7 N 14.0	8 O 16.0	9 F 19.0	10 Ne 20.2
11 Na 23.0	12 Mg 24.3											13 Al 27.0	14 Si 28.1	15 P 31.0	16 S 32.0	17 Cl 35.5	18 Ar 40.0
19 K 39.1	20 Ca 40.1	21 Sc 45.0	22 Ti 47.9	23 V 51.0	24 Cr 52.0	25 Mn 55.0	26 Fe 55.9	27 Co 59.0	28 Ni 58.7	29 Cu 63.6	30 Zn 65.4	31 Ga 69.7	32 Ge 72.6	33 As 74.9	34 Se 79.0	35 Br 80.0	36 Kr 83.8
37 Rb 85.5	38 Sr 87.6	39 Y 88.9	40 Zr 91.2	41 Nb 92.9	42 Mo 95.9	43 Tc (98)	44 Ru 101	45 Rh 103	46 Pd 106	47 Ag 108	48 Cd 112	49 In 115	50 Sn 119	51 Sb 122	52 Te 128	53 I 127	54 Xe 131
55 Cs 133	56 Ba 137	57 La 139	72 Hf 179	73 Ta 181	74 W 184	75 Re 186	76 Os 190	77 Ir 192	78 Pt 195	79 Au 197	80 Hg 201	81 Tl 204	82 Pb 207	83 Bi 209	84 Po 209	85 At 210	86 Rn 222
87 Fr 223	88 Ra 226	89 Ac 227															

Labels below the table:
 green: elements 1, 2, 3, 4, 11, 12, 19, 20, 37, 38, 55, 56, 87, 88, 89
 orange: elements 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 57, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86
 pink: elements 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 57, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86
 blue: elements 13, 14, 15, 16, 17, 18, 31, 32, 33, 34, 35, 36, 49, 50, 51, 52, 53, 54, 81, 82, 83, 84, 85, 86
 yellow: elements 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 31, 32, 33, 34, 35, 36, 49, 50, 51, 52, 53, 54, 81, 82, 83, 84, 85, 86

- A. noble gases
 B. metals
 C. non-metals
 D. transition elements
39. Use the periodic table below to answer the question.

1 H 1.01																	18 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.8	6 C 12.0	7 N 14.0	8 O 16.0	9 F 19.0	10 Ne 20.2
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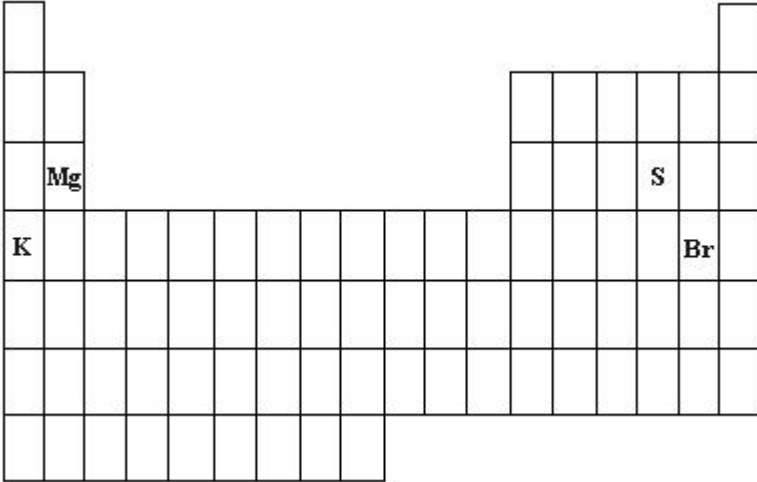
How many valence electrons does the element Te have?

- A. 6
 B. 3
 C. 16
 D. 4

40. Which group on the periodic table consists of elements that are good conductors, have low melting points, and are highly reactive?

- A. alkaline earth metals
- B. transition elements
- C. alkali metals
- D. halogens

41. Use the diagram below to answer the question.



Which of the following has the lowest atomic mass?

- A. Mg
- B. K
- C. S
- D. Br