

Discussion Quiz #3

Your Name: _____KEY_____

TF's name: _____

Discussion Day/Time: _____

There is an element Y with just one significant isotope, ^{20}Y , and another element A with just two isotopes, ^{25}A and ^{28}A , and ^{25}A is twice as abundant as ^{28}A .

1. (4 points) How many molecular ion peaks A_2Y_3 will have? **3 peaks**

$$^{25}\text{A} = 2/3 \quad ^{28}\text{A} = 1/3$$

| | m/z | % |
|---------------------------------|-----|-----|
| $^{25}\text{A}^{25}\text{AY}_3$ | 110 | 4/9 |
| $^{25}\text{A}^{28}\text{AY}_3$ | 113 | 2/9 |
| $^{28}\text{A}^{25}\text{AY}_3$ | 113 | 2/9 |
| $^{28}\text{A}^{28}\text{AY}_3$ | 116 | 1/9 |

2. (4 points) Give the relative height of each of the molecular ion peaks of A_2Y_3 , in order of increasing m/z value.

4:4:1

3.

a. (1point) What is the name of your Teaching Assistant (Fellow)?

b. (1 point) What is the **Day** and **Time** of your discussion section?

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Periodic table of chemical elements

| | | | | | | | | | | | | | | | | | | | |
|--------------------------|--------------------|----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|
| I | | | | | | | | | | | | | | | | | VIII | | |
| 1 H 1.0079 | | | | | | | | | | | 2 He 4.0026 | | | | | | | | |
| II | | | | | | | | | | | | 3 B 10.811 | 4 C 12.011 | 5 N 14.007 | 6 O 15.999 | 7 F 18.998 | 8 Ne 20.180 | | |
| 3 Li 6.941 | 4 Be 9.0122 | Transition elements | | | | | | | | | | 9 Al 26.982 | 10 Si 28.086 | 11 P 30.974 | 12 S 32.066 | 13 Cl 35.453 | 14 Ar 39.948 | | |
| 11 Na 22.990 | 12 Mg 24.305 | 19 K 39.098 | 20 Ca 40.078 | 21 Sc 44.956 | 22 Ti 47.88 | 23 V 50.942 | 24 Cr 51.996 | 25 Mn 54.938 | 26 Fe 55.847 | 27 Co 58.933 | 28 Ni 58.69 | 29 Cu 63.546 | 30 Zn 65.39 | 31 Ga 69.723 | 32 Ge 72.61 | 33 As 74.922 | 34 Se 78.96 | 35 Br 79.904 | 36 Kr 83.80 |
| 37 Rb 85.468 | 38 Sr 87.62 | 39 Y 88.906 | 40 Zr 91.224 | 41 Nb 92.906 | 42 Mo 95.94 | 43 Tc (98) | 44 Ru 101.07 | 45 Rh 102.91 | 46 Pd 106.42 | 47 Ag 107.87 | 48 Cd 112.41 | 49 In 114.82 | 50 Sn 118.71 | 51 Sb 121.75 | 52 Te 127.60 | 53 I 126.90 | 54 Xe 131.29 | | |
| 55 Cs 132.91 | 56 Ba 137.33 | 71 Lu 174.97 | 72 Hf 178.49 | 73 Ta 180.95 | 74 W 183.85 | 75 Re 186.21 | 76 Os 190.2 | 77 Ir 192.22 | 78 Pt 195.08 | 79 Au 196.97 | 80 Hg 200.59 | 81 Tl 204.38 | 82 Pb 207.2 | 83 Bi 208.98 | 84 Po (209) | 85 At (210) | 86 Rn (222) | | |
| 87 Fr (223) | 88 Ra (226) | 103 Lr (260) | 104 Unq (261) | 105 Unp (262) | 106 Unh (263) | 107 Uns (262) | 108 Uno (265) | 109 Une (266) | | | | | | | | | | | |
| Lanthanide series | | | | | | | | | | | | | | | | | | | |
| 57 La 138.9 | 58 Ce 140.1 | 59 Pr 140.9 | 60 Nd 144.2 | 61 Pm (145) | 62 Sm 150.4 | 63 Eu 152.0 | 64 Gd 157.3 | 65 Tb 158.9 | 66 Dy 162.5 | 67 Ho 164.9 | 68 Er 167.3 | 69 Tm 168.9 | 70 Yb 173.0 | | | | | | |
| Actinide series | | | | | | | | | | | | | | | | | | | |
| 89 Ac (227) | 90 Th 232.04 | 91 Pa 231.04 | 92 U 238.03 | 93 Np (237) | 94 Pu (244) | 95 Am (243) | 96 Cm (247) | 97 Bk (247) | 98 Cf (251) | 99 Es (252) | 100 Fm (257) | 101 Md (258) | 102 No (259) | | | | | | |