

Radioactive Decay Worksheet

Key - 1993

Alpha Decay - For each nuclide given, write a complete alpha decay equation.

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|--|---|---|--|--|--|--|
| 1. $^{208}_{84}\text{Po}$
<small>$^{204}_{82}\text{Pb}$</small> | 2. $^{211}_{86}\text{Rn}$
<small>$^{207}_{84}\text{Po}$</small> | 3. $^{211}_{87}\text{Fr}$
<small>$^{207}_{85}\text{At}$</small> | 4. $^{222}_{88}\text{Ra}$
<small>$^{218}_{86}\text{Rn}$</small> | 5. $^{225}_{89}\text{Ac}$
<small>$^{221}_{87}\text{Fr}$</small> | 6. $^{227}_{91}\text{Pa}$
<small>$^{223}_{89}\text{Ac}$</small> | 7. $^{231}_{91}\text{Pa}$
<small>$^{227}_{89}\text{Ac}$</small> |
| 8. $^{233}_{92}\text{U}$
<small>$^{229}_{90}\text{Th}$</small> | 9. $^{237}_{93}\text{Np}$
<small>$^{233}_{91}\text{Pa}$</small> | 10. $^{239}_{94}\text{Pu}$
<small>$^{235}_{92}\text{U}$</small> | 11. $^{241}_{95}\text{Am}$
<small>$^{237}_{93}\text{Np}$</small> | 12. $^{240}_{96}\text{Cm}$
<small>$^{236}_{94}\text{Pu}$</small> | 13. $^{247}_{97}\text{Bk}$
<small>$^{243}_{95}\text{Am}$</small> | 14. $^{251}_{98}\text{Cf}$
<small>$^{247}_{96}\text{Cm}$</small> |
| 15. $^{252}_{99}\text{Es}$
<small>$^{248}_{97}\text{Bk}$</small> | 16. $^{257}_{100}\text{Fm}$
<small>$^{253}_{98}\text{Cf}$</small> | 17. $^{255}_{101}\text{Md}$
<small>$^{251}_{99}\text{Es}$</small> | 18. $^{255}_{102}\text{No}$
<small>$^{251}_{100}\text{Fm}$</small> | 19. $^{256}_{103}\text{Lr}$
<small>$^{252}_{101}\text{Md}$</small> | | |

Beta Decay - For each nuclide given, write a complete beta decay equation.

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|--|--|--|---|--|--|--|
| 20. ^6_2He
<small>^6_3Li</small> | 21. ^8_3Li
<small>^8_4Be</small> | 22. $^{10}_4\text{Be}$
<small>$^{10}_5\text{B}$</small> | 23. $^{13}_5\text{B}$
<small>$^{13}_6\text{C}$</small> | 24. $^{14}_6\text{C}$
<small>$^{14}_7\text{N}$</small> | 25. $^{16}_7\text{N}$
<small>$^{16}_8\text{O}$</small> | 26. $^{19}_8\text{O}$
<small>$^{19}_9\text{F}$</small> |
| 27. $^{20}_9\text{F}$
<small>$^{20}_{10}\text{Ne}$</small> | 28. $^{24}_{11}\text{Na}$
<small>$^{24}_{12}\text{Mg}$</small> | 29. $^{32}_{15}\text{P}$
<small>$^{32}_{16}\text{S}$</small> | 30. $^{35}_{16}\text{S}$
<small>$^{35}_{17}\text{Cl}$</small> | 31. $^{42}_{19}\text{K}$
<small>$^{42}_{20}\text{Ca}$</small> | 32. $^{52}_{26}\text{Fe}$
<small>$^{52}_{27}\text{Co}$</small> | 33. $^{60}_{27}\text{Co}$
<small>$^{60}_{28}\text{Ni}$</small> |
| 34. $^{82}_{35}\text{Br}$
<small>$^{82}_{36}\text{Kr}$</small> | 35. $^{90}_{38}\text{Sr}$
<small>$^{90}_{39}\text{Y}$</small> | 36. $^{99}_{43}\text{Tc}$
<small>$^{99}_{44}\text{Ru}$</small> | 37. $^{131}_{53}\text{I}$
<small>$^{131}_{54}\text{Xe}$</small> | 38. $^{137}_{55}\text{Cs}$
<small>$^{137}_{56}\text{Ba}$</small> | 39. $^{192}_{77}\text{Ir}$
<small>$^{192}_{78}\text{Pt}$</small> | 40. $^{201}_{79}\text{Au}$
<small>$^{201}_{80}\text{Hg}$</small> |

Electron Capture - For each nuclide given, write a complete electron capture equation.

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|--|--|--|--|--|--|--|
| 41. $^{37}_{18}\text{Ar}$
<small>$^{37}_{17}\text{Cl}$</small> | 42. $^{50}_{23}\text{V}$
<small>$^{50}_{22}\text{Ti}$</small> | 43. $^{51}_{24}\text{Cr}$
<small>$^{51}_{23}\text{V}$</small> | 44. $^{57}_{27}\text{Co}$
<small>$^{57}_{26}\text{Fe}$</small> | 45. $^{56}_{28}\text{Ni}$
<small>$^{56}_{27}\text{Co}$</small> | 46. $^{67}_{31}\text{Ga}$
<small>$^{67}_{30}\text{Zn}$</small> | 47. $^{73}_{33}\text{As}$
<small>$^{73}_{32}\text{Ge}$</small> |
| 48. $^{81}_{36}\text{Kr}$
<small>$^{81}_{35}\text{Br}$</small> | 49. $^{80}_{38}\text{Sr}$
<small>$^{80}_{37}\text{Rb}$</small> | 50. $^{91}_{41}\text{Nb}$
<small>$^{91}_{40}\text{Zr}$</small> | 51. $^{97}_{44}\text{Ru}$
<small>$^{97}_{43}\text{Tc}$</small> | 52. $^{125}_{53}\text{I}$
<small>$^{125}_{52}\text{Te}$</small> | 53. $^{128}_{56}\text{Ba}$
<small>$^{128}_{55}\text{Cs}$</small> | 54. $^{145}_{62}\text{Sm}$
<small>$^{145}_{61}\text{Pm}$</small> |
| 55. $^{168}_{69}\text{Tm}$
<small>$^{168}_{68}\text{Er}$</small> | 56. $^{200}_{84}\text{Po}$
<small>$^{200}_{83}\text{Bi}$</small> | 57. $^{235}_{94}\text{Pu}$
<small>$^{235}_{93}\text{Np}$</small> | 58. $^{239}_{96}\text{Cm}$
<small>$^{239}_{95}\text{Am}$</small> | 59. $^{244}_{97}\text{Bk}$
<small>$^{244}_{96}\text{Cm}$</small> | 60. $^{247}_{99}\text{Es}$
<small>$^{247}_{98}\text{Cf}$</small> | 61. $^{257}_{101}\text{Md}$
<small>$^{257}_{100}\text{Fm}$</small> |

Positron Decay - For each nuclide given, write a complete positron decay equation.

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|--|--|--|--|--|--|--|
| 62. $^{13}_7\text{N}$
<small>$^{13}_6\text{C}$</small> | 63. $^{15}_8\text{O}$
<small>$^{15}_7\text{N}$</small> | 64. $^{18}_9\text{F}$
<small>$^{18}_8\text{O}$</small> | 65. $^{19}_{10}\text{Ne}$
<small>$^{19}_9\text{F}$</small> | 66. $^{21}_{11}\text{Na}$
<small>$^{21}_{10}\text{Ne}$</small> | 67. $^{23}_{12}\text{Mg}$
<small>$^{23}_{11}\text{Na}$</small> | 68. $^{25}_{13}\text{Al}$
<small>$^{25}_{12}\text{Mg}$</small> |
| 69. $^{27}_{14}\text{Si}$
<small>$^{27}_{13}\text{Al}$</small> | 70. $^{30}_{15}\text{P}$
<small>$^{30}_{14}\text{Si}$</small> | 71. $^{30}_{16}\text{S}$
<small>$^{30}_{15}\text{P}$</small> | 72. $^{37}_{19}\text{K}$
<small>$^{37}_{18}\text{Ar}$</small> | 73. $^{39}_{20}\text{Ca}$
<small>$^{39}_{19}\text{K}$</small> | 74. $^{42}_{21}\text{Sc}$
<small>$^{42}_{20}\text{Ca}$</small> | 75. $^{45}_{22}\text{Ti}$
<small>$^{45}_{21}\text{Sc}$</small> |
| 76. $^{54}_{27}\text{Co}$
<small>$^{54}_{26}\text{Fe}$</small> | 77. $^{60}_{29}\text{Cu}$
<small>$^{60}_{28}\text{Ni}$</small> | 78. $^{61}_{30}\text{Zn}$
<small>$^{61}_{29}\text{Cu}$</small> | 79. $^{83}_{38}\text{Sr}$
<small>$^{83}_{37}\text{Rb}$</small> | 80. $^{68}_{31}\text{Ga}$
<small>$^{68}_{30}\text{Zn}$</small> | 81. $^{75}_{35}\text{Br}$
<small>$^{75}_{34}\text{Se}$</small> | 82. $^{155}_{66}\text{Dy}$
<small>$^{155}_{65}\text{Tb}$</small> |

Sample Full Equations

