

## Atomic Arithmetic

Fill in the number that answers each statement and do the arithmetic indicated. Your final answer will be the value for the half-life of carbon-14. The dotted lines will contain your answers to each intermediated step.

1. The mass number of the uranium isotope most commonly used as a nuclear fuel. \_\_\_\_\_  
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2. The number of grams of a 100-gram sample of rhodium-106 that remains after 60 seconds, if rhodium's half-life is 30 seconds. x \_\_\_\_\_  
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3. The atomic number of a thorium atom that forms when  $^{92}\text{U}_{238}$  undergoes alpha decay. - \_\_\_\_\_  
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4. The number of protons in the nucleus of a uranium atom. - \_\_\_\_\_  
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5. The increase in the atomic number of an element as a result of releasing a beta particle. + \_\_\_\_\_  
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6. The number of quarks that make up a proton. / \_\_\_\_\_  
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7. The atomic number of an atom having 3 protons x \_\_\_\_\_  
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8. The number of protons plus neutrons in an alpha particle. - \_\_\_\_\_  
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9. The atomic number of the isotope left after Ba undergoes alpha decay. - \_\_\_\_\_  
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10. The mass number of a fluorine atom having 9 protons and 10 neutrons? .  
+ \_\_\_\_\_  
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The half-life of carbon -14 is \_\_\_\_\_ Years.