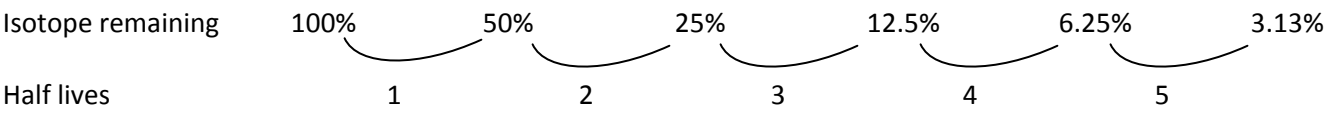
Name: _____

HALF – LIFE CALCULATIONS

How to solve these problems:

Number of half-lives = $\frac{\text{Total time elapsed}}{\text{Half-life}}$

Amount remaining = (starting amount) $(0.5)^{\text{number of half-lives}}$



1. The half-life of Zn-71 is 2.4 minutes. If one had 100.0 grams at the beginning, how many grams would be left after 7.2 minutes has elapsed?

2. Under the same circumstances as above, but you started with 18 grams of Zn-71, how grams would be left?

3. Os-182 has a half-life of 21.5 grams. How many grams of a 10 gram sample would have decayed after exactly 3 half-lives?

4. After 24 days, 2 mg of an original 128 mg sample remains. What is the half-life of the sample?

5. How long will it take the 40 grams of I-131 (half life = 8 days) to decay to approximately 1/100 (0.01) its original mass?

6. Rn-222 has a half-life of 3.82 days. How long before only 1/16 of the original same remains?

7. U-238 has a half-life of 4.46 billion years. How much U-238 was present initially if 2 grams remains after 13.4 billion years?

8. How much U-238 should be present in a sample that is only 2 billion years old if 4 grams was present initially?