Half-life Practice Worksheet

Complete the following problems. <u>Please show your work.</u> You may use a table to
guide your thought process.

Table:

Time	Half-Life	# atoms remaining (or grams)	% of atoms remaining

1. How many days does it take for 16 g of palladium-103 to decay to 8.0 g? The half-life of palladium-103 is 17 days.

2. If the half-life of iodine-131 is 8.10 days, how long will it take a 50.00 g sample to decay to 6.25 g?
How many days

*3. What is the half-life of a 100.0 g sample of nitrogen-16 that decays to 12.5 g of nitrogen-16 in 21.6 s?
How many seconds is **JUST ONE half life** (work backwards)

*4. If 100.0 g of carbon-14 decays until only 25.0 g of carbon is left after 11 460 y, what is the half-life of carbon-14?
How many years is **JUST ONE half life** (work backwards)

*5. A 208 g sample of sodium-24 decays to 13.0 g of sodium-24 within 60.0 h. What is the half-life of this radioactive
   isotope?
How many hours is **JUST ONE half life** (work backwards)

*6. After 42 days a 2.0 g sample of phosphorus-32 contains only 0.25 g of the isotope.   What is the half-life of
   phosphorus-32?
How many days is **JUST ONE half life** (work backwards)

*7. In 5.49 seconds, 1.20 g of argon-35 decay to leave only 0.15 g. What is the half-life of argon-35?
How many seconds is **JUST ONE half life** (work backwards)

8. Potassium-42 has a half-life of 12.4 hours. How much of an 848 g sample of potassium-42 will be left after 62.0 hours?
How many grams are left

9. Sodium-24 has a half-life of 15 hours. How much sodium-24 will remain in an 18.0 g sample after 60 hours?
How many grams are left

10. Carbon-14 has a half-life of 5730 years. How "old" would a real fossil be after 4 carbon-14 half-lives?
How many years