Name_____

Best Reason to Conform_____

Show your work, circle your answers, and use sig figs to receive full credit.

1. How fast must an alpha particle (m = 6.64×10^{-27} kg) go to get within 5.0×10^{-15} m of an Iron nucleus (Z = 26)

2. What is the wavelength of the photon associated with an electron transition from n = 2 to n = 7 in a hydrogen atom? Is the photon being absorbed, or emitted?

3. What is the radius of U-235?

If the uncertainty of an electron's position is 1.20×10^{-10} m, what is the minimum uncertainty (the total range) of its velocity?

4. For the decays, find the missing particle. For the reactions, indicate if it is possible, or indicate <u>every</u> law it violates:

$\mu^+ \rightarrow$?? + υ_e + $\overline{\upsilon_\mu}$	$\mu^+ \rightarrow e^+ +$?? + $\overline{\upsilon_\mu} + e^+ + e^-$	$p + p \rightarrow p + n + \overline{\Sigma^+} + \Lambda^o$	$p + n \rightarrow K^+ + n + n + n + \bar{p}$
e+	υ_e	yes	No, charge, strangeness

5. Write the quark combinations that make up a proton and a neutron: p =_____ n =_____

Identify the following quark combinations as either a meson, or a baryon. Determine the baryon number, strangeness, and the charge of each:

	Baryon or Meson?	B = ?	S = ?	q = ?
usb	B	1	-1	0
d$\bar{s}$	M	0	+1	0
uuc	B	1	0	+2
c$\bar{u}$	M	0	0	0