Chapter 7 – Risk Questions

1. Write each expression with base 3. 27^7	2. Write the expression as a single power. $\dfrac{\sqrt{27}}{\sqrt[4]{9}}$
Risk:	Risk:
3. Solve: $5^{3x-1} = 125^{2x}$	4. Solve: $2^x = 73$
Risk:	Risk:
5. Solve $3^{2x} + 3^x - 12 = 0.$	6. To determine whether a person has a thyroid deficiency, a radioactive iodine with a half-life of 8.2 days is injected into the bloodstream. A healthy thyroid is able to absorb all of the radioactivity. The amount, R, of radioactivity present after t days can be modelled by the relationship $R(t) = R_0\left(\dfrac{1}{2}\right)^{\frac{t}{8.2}}$, where R_0 is the initial dose. How long will it take for 87.5% of the iodine to be absorbed into a healthy person's body?
Risk:	Risk:
7. Simplify, using the laws of logarithms. a) $\log 8 + \log 5$	8. Simplify, state any restrictions on variables. $4 \log x - 5 \log \sqrt{x} + \dfrac{1}{2} \log x^8$
Risk	Risk:
9. Simplify, state any restrictions on variables. $\log(x^2 - 11x + 28) - \log(x - 7)$	10. Solve: $\log_4(x + 9) = 2$
Risk	Risk

11. Solve $\log_{11} x + \log_{11}(x + 1) = \log_{11} 6$	12. Solve the equation $\dfrac{\log(28 - x^3)}{\log(4 - x)} = 7.$
Risk	Risk
13. The table below shows the population growth of rabbits living in a warren. | Time (years)	Number of Rabbits
1	12
2	15
3	19
4	23
5	29
6	37
7	46 | Use a model to predict when the population will reach 100.	14. A wound, initially with an area of 80cm², heals according to the formula $A(t)=80(10^{-0.023t})$, where A(t) is the area of the would after t days. In how many days will the wound be 75% healed?
Risk:	Risk:
14b. How fast is the wound healing on the 5th day?	
Risk:	