

Math 113 group work 4.5: exponential and logarithm equations and applications

1. Solve for x : $\log_3(x + 2) + \log_3(x + 8) - \log_3 x = 3$

2. You invest money in a certificate of deposit which pays 5% annually. How long does it take for your balance to triple in size? Find both exact and approximate-to-the-nearest-tenth answers.

exact: _____

approximate: _____

3. The half-life of Ra^{226} is 1620 years.

a) If you start with 100 g, how much is left after 1620 years? after 3240 years?

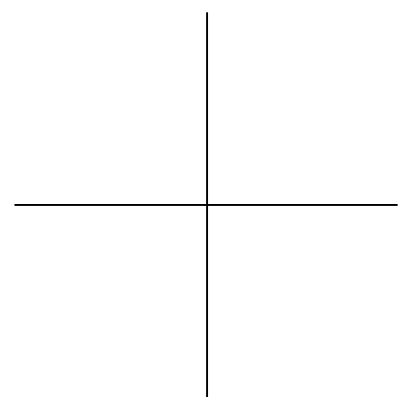
b) Find the equation that expresses the radioactive decay. (You'll need to find k .)

c) Use your equation to determine how long it will take for your original 100 g to decay to 80 g. Find both exact and approximate-to-the-nearest-hundredth answers.

exact: _____

approximate: _____

4. a) Sketch the graph of $f(x) = e^{x+1} - 2$.



b) Sketch the graph of $g(x) = \log_2(x + 1) - 2$.

