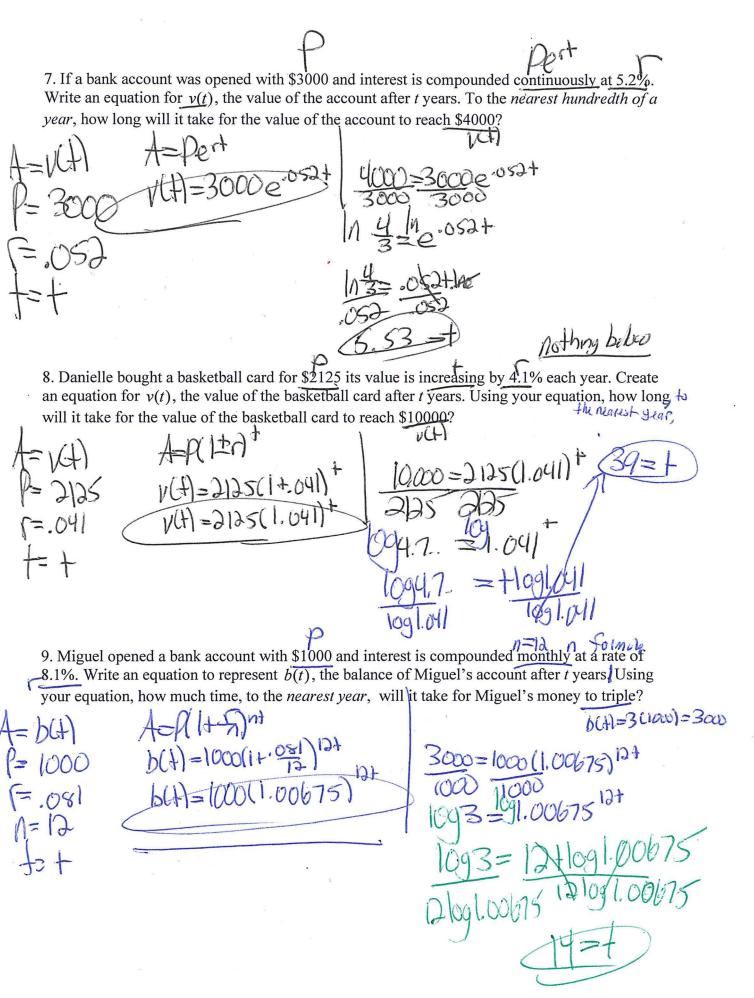
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Date	
Algebra II	-

Exponential Modeling Finding t	
1. Megan opens a savings account with \$5,000 in it. If interest is compounded weekly at a rate of	
(4.3%, write an equation for $b(t)$ , the balance of her account after $t$ years Using your equation, how long will it take for Megan's money to reach \$8.000?  A O L C Nt S D C S S S S S S S S S S S S S S S S S	
how long will it take for Megan's money to reach \$8,000? $A = 2(1+5)nt$	
$A=p(1+5)^{nt}$ $b(t) = 5,000(1+\frac{0.93}{50})$ $b(t) = 5,000(1+\frac{0.93}{50})$ $b(t) = 5,000(1+\frac{0.93}{50})$	
= 01/2 till 0 11 12 12 12 12 12 12 12 12 12 12 12 12	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
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1. 1C/150	
2. One of the medical uses of Iodine–131 (I–131), a radioactive isotope of iodine, is to enhance	
x-ray images. The half-life of I–131 is approximately 8.02 days. A patient is injected with 20 $P$ milligrams of I–131. Create an equation for $a(t)$ , the amount of Iodine-131 remaining after $t$	
days. Determine, to the <i>nearest day</i> , the amount of time needed before the amount of I–131 in	
the patient's body is approximately $\frac{7}{aG}$ milligrams. $\frac{1}{2} = \frac{1}{2} = \frac{1}{$	
P= 20 70 \\ \frac{1}{800}	
att=20(=) 8.02	
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11=8.07	
8.0209.35 = T1090 31	
3. Tyler opens a bank account with \$5,450 with an annual interest rate of 5.3% compounded	
continuously. Write an equation for $b(t)$ , the balance of Tyler's account after $t$ years. Using your	
equation, to the nearest hundredth of a year, how long will it take for Tyler's account to triple?	
- bct /3=.053+lw bc+1=3(5450)	
2= 5450 bch = 5450e 053+ 113=.055+116 bch = 16350	
05 3 (350=5450e.053+ 20.73=+)	

4. Jessica deposits \$2000 into a bank account where 4% interest is given every 2.4 years. Write an equation for v(t), the value of Jessica's account after t years. Using your equation, to the nearest tenth of a year, how long will it take for Jessica's investment to reach \$5000? 5. Manny opens a savings account with \$6,400.00 with a 5.2% interest rate that is compounded quarterly. Write an equation for b(t), the balance of the account after t years. Using your equation, to the nearest tenth of a year, how long will it take for Manny's balance to double? b(+)=2((40)=12800 t= 6(A) P= 6400 6. Christopher is preparing for the Nassau County Spelling Bee. Currently, Christopher knows 1200 words and will learn 20% more words every 4 days. Write an equation, A(t), to represent how many words Christopher will be able to spell after t days. After how many days, to the nearest day, will Christopher be able to spell 5000 words?

illexbortino



## nothing below

10. Melanie bought a car for \$52,000 and the car depreciates at a rate of 10% each year. Write an equation to represent the value of the car, v(t), after t years. Using your equation, to the nearest tenth of a year, how long will it take until the value of her car reaches \$22,000?

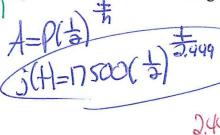
$$A = v(t)$$
  $A = R(1 \pm r)^{+}$   
 $P = 52000 v(t) = 52000(1 - 10)^{+}$   
 $r = .10$   $v(t) = 52000(.9)^{+}$   
 $t = t$ 

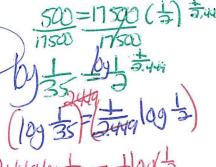
$$\begin{array}{c|c} & & & & & & & \\ \hline 22000 & = 52000(.9)^{\dagger} \\ \hline 52000 & = 52000 \\ \hline 109.91 & = 109.91 \\ \hline 109.9 & = 109.91 \\ \hline 109.9 & = 109.91 \\ \hline \end{array}$$

11. Jennifer initially invested \$4800 in a bank account compounded continuously at a rate of 5.8%. Write an equation for C(t), the value of her account after t years. After how much time, to the nearest tenth of a year, will it take for Jennifer's money to double?

12. The half-life of carbon-15 is 2.449 seconds. If Jackie has 17500 grams of carbon-15, write an equation for j(t), the amount of grams of carbon-15 remaining after t seconds. After how much time will there be 500 grams of carbon-15 remaining? Round your answer to the nearest tenth of

a second. = j(+) p=17500 += +





2.449/09/35 = +109/3 109/3 = 109/3