

Date	
Algebra II	

Modeling Exponential Functions Practice

$A = P(1 \pm r)^{t}$	N. d. ' D. I I	A = after amount		n
()	Nothing Below!	P = principal (initial/starting) amount	Annually Quarterly	1 4
$A = P\left(1 + \frac{r}{n}\right)^{n}$	Compounding (Not Continuous)	r = rate (as a decimal)	Monthly Weekly	12 52
$A = Pe^{rt}$	Compounding Continuously	n = number of times compounded per year	Daily	365
$A = P\left(\frac{1}{2}\right)^{\frac{t}{h}}$	Half Life	t = time (that is passing)		
		h = half life or time it takes for the percent to be applied		
$A = P(1 \pm r)^{\frac{t}{h}}$	Irregular Time		2 17	

1. Jackie deposits \$26,000 into a savings account with interest compounded monthly at a rate of 4.6% each year. Write an equation for A(t), the value of her account after t years. Use your equation to determine how much money will be in her account after 4 years?

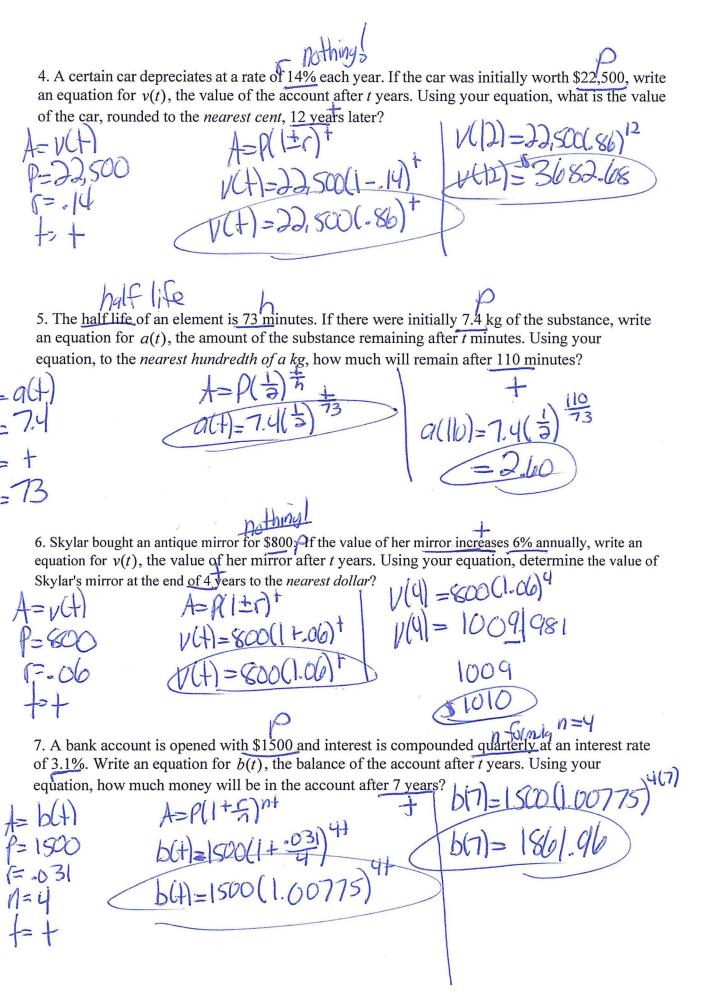
Irregular Time

 $A = P(1+5)^{n+}$ $A(1) = 26,000 (1 + \frac{046}{12})^{12+}$ A(1) = 26,000 (1.00383) A(1) = 26,000 (1.00383) A(1) = 31,241.42

2. The population of Schlansky, Arizona increases by 18% every 3.2 years. If the population is currently 2750, write an equation for p(t), the population after t years. Using your equation, what will be the population, to the nearest person, 12 years from now?

3. A bank account is opened with \$2700 and interest is compounded continuously at a rate of 3.76% per year. Write an equation for b(t), the balance of the account after t years. Using your equation, what will be the balance of the account after 8.1 years?

b(8.1) = 2700e 0376(8.1) b(8.1)=\$1366,28



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8. The amount of insects in a colony doubles every 6 days. If there are initially 50 insects, write an equation for P(t), the amount of insects in the colony after t days. Using your equation, how many insects, to the *nearest insect*, will be in the colony after 11 days? h=10 9. A bank account is opened with \$9200 and is compounded at a rate of 4.7% continuously. Write an equation for A(t), the amount of money in the account after t years. Using your equation, how much money will be in the account after 5 years? 10. The half-life of an element Schlanskium is 4.1 days. If there is a 9000 gram sample, write an equation for p(t), the amount of Schlanskium remaining after t days. To the nearest hundredth of a gram, how much Schlanskium will remain after 7 days? 11. Emma opens a bank account with an initial balance of \$90,210. If interest is compounded quarterly at 4.25% each year, write an equation for b(t), the balance of the account after t years. Using your equation, how much money will be in the account after 14 years? b(14)=9020(1010625)4(14) 12. Sophia is beginning to lift weights to get buff for the summer. She starts by working out 30 minutes and every five days, she will increase the time of her workouts by 25%. Write an equation to represent d(t), the duration of her workout after t days Using your equation, how many minutes will Sophia be working out after 30 days rounded to the nearest tenth of a minute?