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1945, 1956	
	rates " raise

Name	Schlanska	9
Mr. Sch		

Date	
Algebra II	

## **Converting Rates**

Round all coefficients to 6 decimal places

1.	Gerard took out a \$72000 loan for college that has a 12.7% interest r	rate. An	equation t	to repres	sent this
	situation is given as $A(t) = 72000(1.127)^{t}$ .	110	775	_ 1	May

Write an equation to find the monthly growth rate after t years.

Frite an equation to find the monthly growth rate after 
$$t$$
 years.

$$A(t) = 72000(1.010013)$$

For years, the monthly rate  $12 + 1000013$ 

A(m) = 72000(1.010013) you get the monthly rate 1 time per month. Write an equation to find the monthly growth rate after m months.

What is the monthly growth rate rounded to the nearest thousandth of a percent?

$$\frac{1.010013}{0.010013(100)} = 1.0011$$
Write an equation to find the weekly growth rate after t years.  $|.127^{52} = 1.602302$ 

$$4(4) = 72000(1.002302)^{524}$$
You get the weekly rate 52 times per year

Write an equation to find the weekly growth rate after w weeks.

What is the weekly growth rate to the nearest thousandth of a percent?

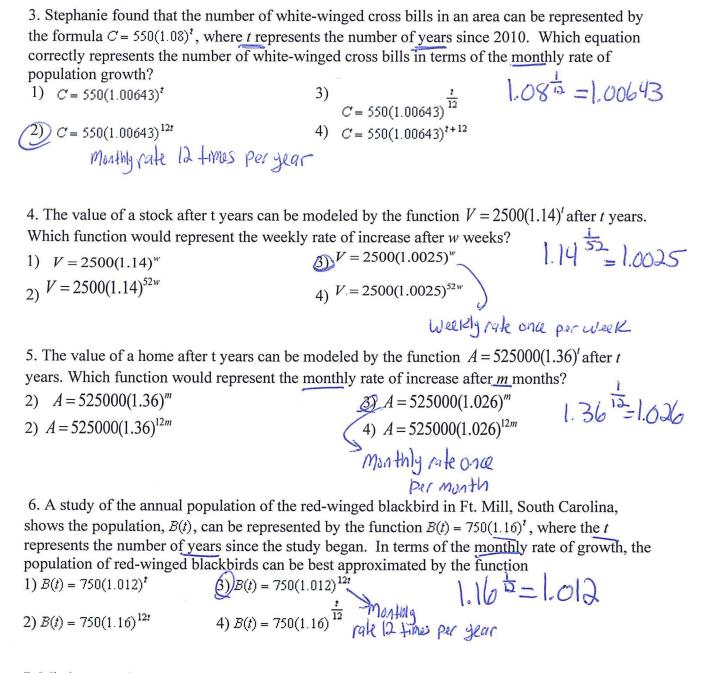
$$\frac{1.002302}{.002302(100)} = .230\%$$
Write an equation to find the daily growth rate after t years. 
$$\frac{1.127}{365} = 1.000327$$

$$4(1) = 12000(1.000327)^{365}$$
You get the daily rate 365 times per year

Write an equation to find the daily growth rate after d days.

What is the daily growth rate to the nearest thousandth of a percent?

2. The population of a small neighborhood in Brooklyn, NY is 452,000 and is growing by a rate of 11.6% each year. An equation to represent this situation is given as $A(t) = 452000(1.116)^t$ .  Write an equation to find the monthly growth rate after $t$ years.  A(t) = 452000 (1.009188) 124 monthly rate 12 times Regger
Write an equation to find the monthly growth rate after m months.  A(m)=452000 (1,009188) monthly rate 1 time per month
What is the monthly growth rate to the nearest thousandth of a percent? $\frac{1.009188}{0.009188(100)} = .9197.$ Write an equation to find the weekly growth rate after t years. $1.116^{\frac{1}{52}} = 1.000113$ $A(+) = 452000(1.00)113)^{52+}$ Weekly rate 52 times per year
Write an equation to find the weekly growth rate after $w$ weeks. $A(w) = 452000(1.002113)^{w} \text{ weekly rate } 1 \text{ time per weekl}$
What is the weekly growth rate to the nearest thousandth of a percent?  1.002113  -1  -002113(100) = .2117.  Write an equation to find the daily growth rate after t years.  1.116 = 1.000301  A(+) = 452000(1.000301) 365+  daily rate 365 of times per year
Write an equation to find the daily growth rate after d days. $4(d) = 452000 (1.000301)^{d}  \text{daily rate } 1 \text{ fine per day}$
What is the daily growth rate to the nearest thousandth of a percent?



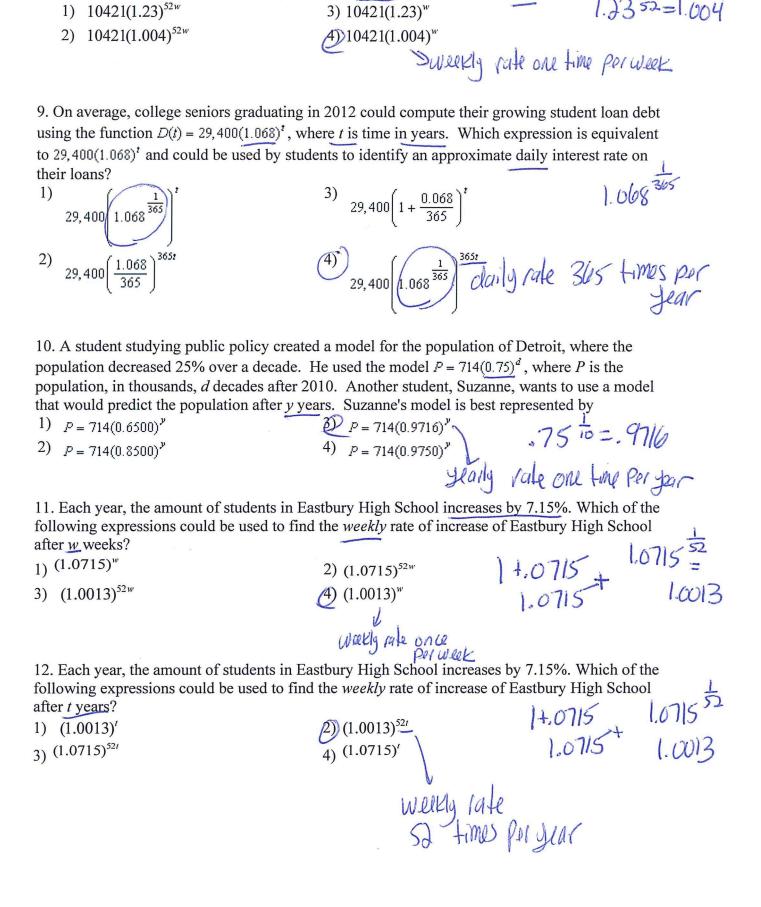
7. Mia has a student loan that is in deferment, meaning that she does not need to make payments right now. The balance of her loan account during her deferment can be represented by the function  $f(x) = 35,000(1.0325)^x$ , where x is the number of years since the deferment began. If the bank decides to calculate her balance showing a monthly growth rate, an approximately equivalent function would be

1) 
$$f(x) = 35,000(1.0027)^{12x}$$
  
2)  $f(x) = 35,000(1.0027)^{\frac{x}{12}}$   
3)  $f(x) = 35,000(1.0325)^{\frac{x}{12}}$   
4)  $f(x) = 35,000(1.0325)^{\frac{x}{12}}$ 

3) 
$$f(x) = 35,000(1.0325)^{12x}$$

$$f(x) = 35,000(1.0325)^{12x} \qquad 1.0325^{\frac{1}{12}} = 1.0027$$

Monthly rate 12 times per year



8. The population of Schlansky, Utah is increasing according to the formula  $p(t) = 10421(1.23)^t$ 

after t years. Which expression can represent the weekly growth rate, after w weeks?

