If the word problems are **linear functions**, then the following formula should be applied: y = dx + initial amount. The **d** in the formula stands for difference. The number for d will be found next to the word **per**. When plugging in numbers, numbers that represent time should be plugged in for x. Numbers representing money should be plugged in for y. Then follow the steps to solve the equation.

**Please remind students that if the word problem is linear and paying back money, then the number next to x must be negative. If the word problem is exponential and paying back money, then you must use the exponentialdecay which is subtracting inside the parenthesis.**

**Exponential word problems** should use the following formula: y = initial amount C:\Users\KDC10960\AppData\Local\Microsoft\Windows\INetCache\Content.MSO\CBA259EA.tmp The letter **r**represents **ratio** which is whatever the amount is changing by. If the problem states **doubles**, then**r = 2.**If the problem states **triples**, then **r = 3,**etc. When plugging in numbers, numbers that represent time should be plugged in for x.

**If there is a percent, then one of the following formulas must be used: (Problems involving a percent:  the value should always be plugged in to the exponent)**

**Exponential Growth** is when something is getting bigger in some way (increasing) and uses the following formula: y = initial value C:\Users\KDC10960\AppData\Local\Microsoft\Windows\INetCache\Content.MSO\77C6D988.tmp. **t**or **x**represents time and (1 + %) is the **growth rate**. The following words represent growth:  **savings, increase, appreciate**.

**Exponential Decay** is when something is getting smaller in some way (decreasing) and uses the following formula: y = initial value.C:\Users\KDC10960\AppData\Local\Microsoft\Windows\INetCache\Content.MSO\564BE0D6.tmp **t**or **x**represents time and (1 - %) is the **decay rate**. The following words represent decay:  **decrease, depreciate.**

To enter the percent on the TI-36XPRO calculator, then hit the second divide button.