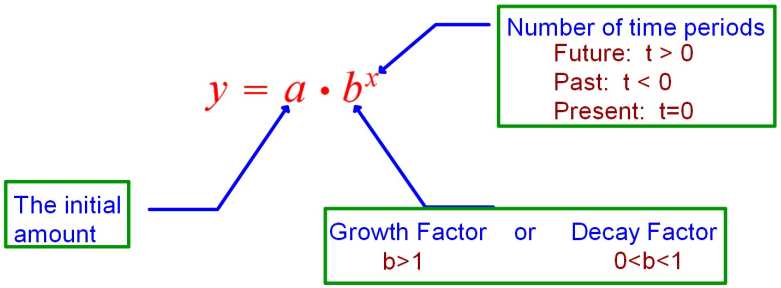
When an exponential models a "real life" situation:



Bellwork Tuesday, March 11, 2014

1. The number of fish in a lake is decreasing 8% a year due to overfishing. There were 25,000 fish in the lake in 2006.

$y = 25000(.92)^x$ 100% − 8% = 92%

a) Find the number of fish in the lake in 2000.

$X = -6 \rightarrow 41{,}230$

b) How many fish will there be in 2020?

$X = 14 \rightarrow 7780$

2. A certain medicine has a half life of 40 minutes. You took a 250mg dose at 7:00 am.

Find the amount of medicine remaining in your system at 1:30pm. Round to the nearest hundredth of a mg.

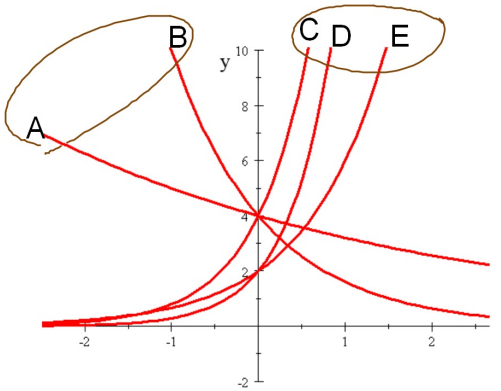
$y = 250(.5)^{\frac{390}{40}} = .29$ mg

6.5 hrs × 60 = 390 min ÷ 40 = 9.75

3. Match each equation to it's graph.

D $y = 2(7)^x$ A $y = 4(0.8)^x$ E $y = 2(3)^x$

B $y = 4(0.4)^x$ C $y = 4(5^x)$



4. The population of a city has been increasing 6.7% each year. The population in 1998 was 12,500.

In how many years will the population first exceed 250,000? Round to the nearest hundredth.

$$\frac{12{,}500(1.067)^x}{12{,}500} = \frac{250{,}000}{12500}$$

$$(1.067)^x = 20$$