

7-8 Seating Chart:

Group 1

Tessa
Air
Maxine
Kayla

Group 2

Cynthia
Lizbeth
Jose
Juan

Group 3

Nic
Will
Pierre
Anthony

Group 4

Ethan
Darielle
Keymari

Group 5

Sam D
Alex
James W.
Isaiah

Group 6

Shawna
Corinne
JP
Yasir

Group 7

Omar
Justine
Megan
Lanie

Group 8

James D.
Matt L.
Jesus M
Jordan

Feb 7-7:40 AM

Happy Tuesday, February 7th!

Do Now:

- 1) Take worksheet from back table
- 2) Notebooks out please :)
- 3) Keep quiz to study from

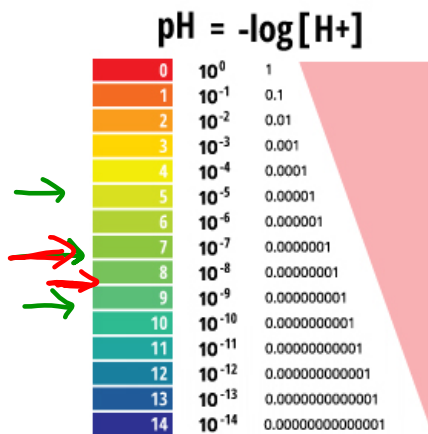
Feb 7-9:45 AM

Handwritten calculations for converting percentages to decimal form:

- $80\% = .8$ (shown as $\frac{80}{100} = .8$ and $\frac{80}{100} = .8$ with a crossed-out $\frac{8000}{100}$)
- $110\% = 1.10$
- $0.85\% = .0085$
- $.76\% = .0076$

Feb 7-10:26 AM

An Example from Chemistry



pH of our eyes is about 7.4

We want to balance this!!



Oct 24-7:27 AM

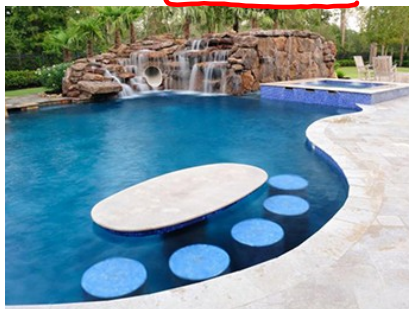
7.4

Two Different Pools

$$pH = -\log(H^+)$$

* $pH = 7.4$

H^+ is 0.00000000398



$pH = 8.4$

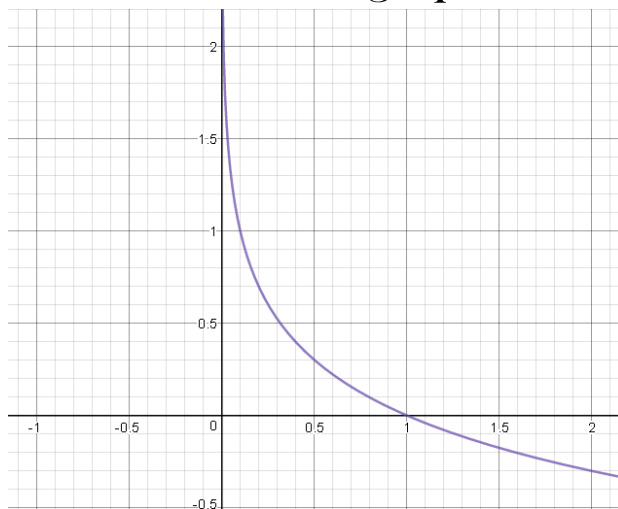
H^+ is 0.00000000398



Oct 24-7:41 AM

What do you notice about the graph?

$y = -\log x$



Oct 24-7:52 AM

PLUG and CHUG

There are three equations:

Growth/Decay

$$y = A(1+r)^t$$

$$y = A(1-r)^t$$

Half Life

$$y = A\left(\frac{1}{2}\right)^{t/h}$$

Continuous

$$y = Pe^{rt}$$

Feb 7-8:06 AM

PLUG and CHUG

Growth/Decay

Growth →

Decay ←

$$y = A(1+r)^t$$

$$y = A(1-r)^t$$

initial amount ↑

rate ↑

time ↑

initial amount ↑

rate ↑

time ←

Feb 7-8:06 AM

Things to look for:

Rate: (usually a percentage) ^{o/o} CONVERT TO DECIMAL.

Time: This is your exponent

Initial Amount: The amount you start with

GROWTH OR DECAY????

Feb 7-9:49 AM

Check out problem 1 on your worksheet:

Rate:

Time:

Initial Amount:

Growth or Decay?

Feb 7-9:51 AM

Write a formula that represents the average growth of the population of a city with a rate of 7.5% per year. Let x represent the number of years, y represent the most recent total population of the city, and A is the city's population now. What is the expected population in 10 years if the city's population now is 22,750 people?

$$r = .075$$

$$t = 10$$

$$A = 22,750$$

$$y = A(1+r)^t$$

$$y = 22750(1 + .075)^{10}$$

$$y = 46,888.5 \approx 46,889$$

Feb 7-10:02 AM

Half Life

$$y = A \left(\frac{1}{2} \right)^{t/h}$$

initial amount

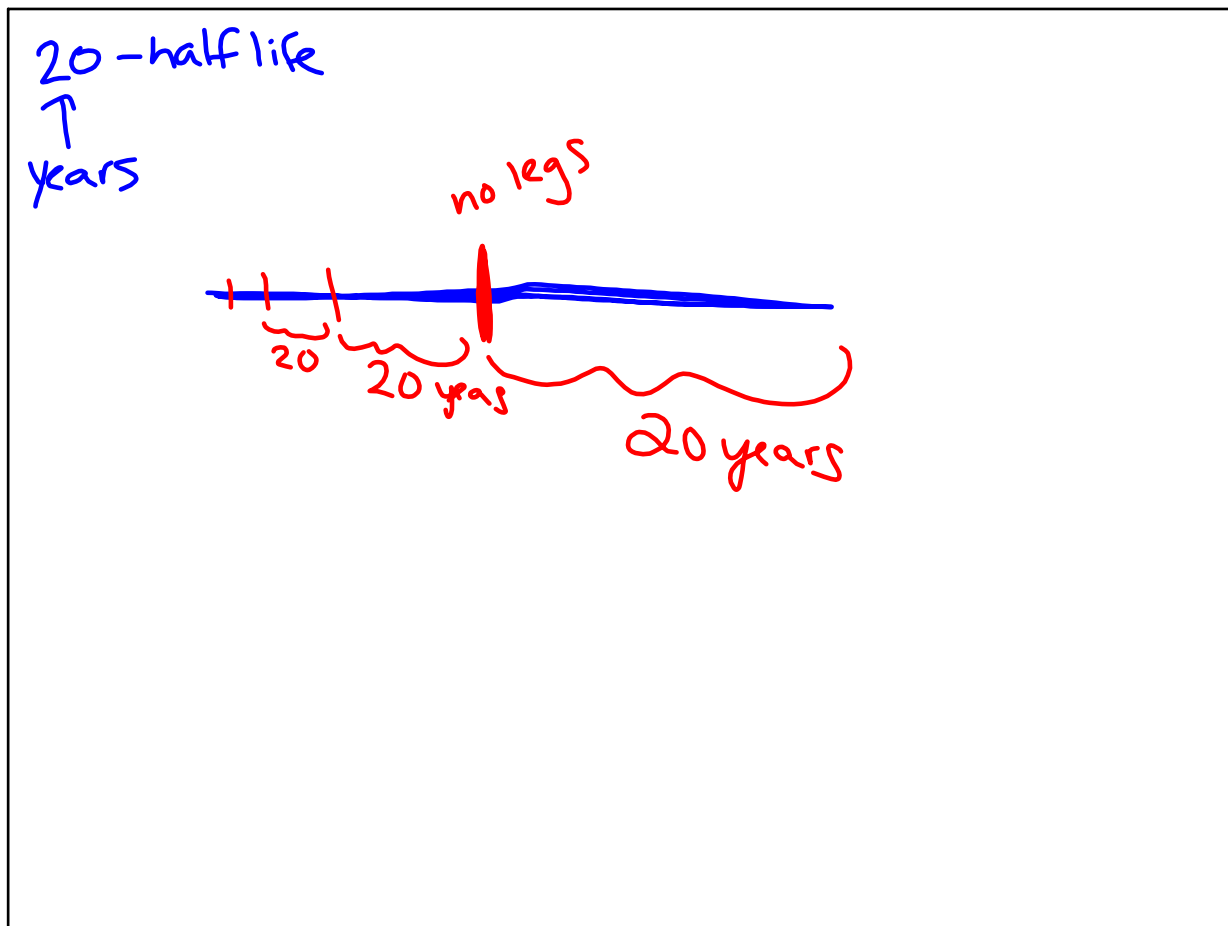
time

 t/h

half-life

~~|||~~

Feb 7-9:49 AM



Feb 7-10:56 AM

Things to look for:

Half-life: Usually says "half-life"

Time: Time that is NOT your half-life

Initial Amount: The amount you start with

Feb 7-9:49 AM

Check out number 5 on your worksheet!

Half-life:

Time:

Initial Amount:

Feb 7-9:54 AM

Radioactive gold ~~198~~ (^{198}Au), used in imaging the structure of the liver, has a half-life of 2.67 days. If the initial amount is 50 milligrams of the isotope, how many milligrams will be left over after:

- a) 1/2 day $= \frac{1}{2}$ $h = 2.67 \text{ days}$ $A = 50$ $y = A\left(\frac{1}{2}\right)^{(t/h)}$
 $y = 50(0.5)^{(0.5/2.67)}$
- b) ~~1 week~~ $\Rightarrow t = 7$
8.12 milligrams

Feb 7-10:03 AM

Continuous

$$y = Pe^{rt}$$

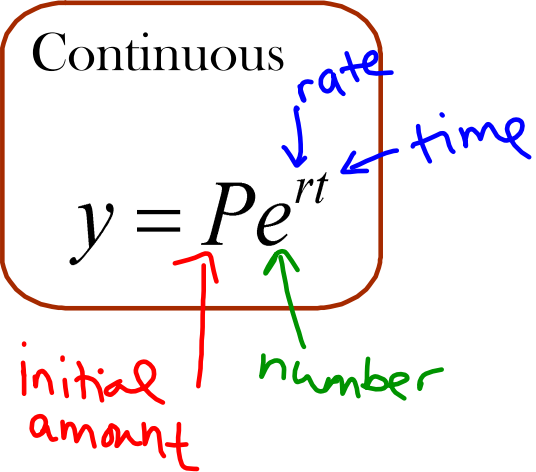
P = principle amount
(what you start with)

rate

time

initial amount

number



Feb 7-9:49 AM

Things to look for:

The word **CONTINUOUS**

Rate: (usually a percentage) Convert to decimal

Time: This is your exponent

Initial Amount: (usually money).

Remember e is a number your calculator knows.

Feb 7-9:57 AM

Check out number 10 on your worksheet!

Do you see the word continuous?

Rate:

Time:

Initial Amount:

Feb 7-9:58 AM

Suppose Jorge deposits $\$1500$ ^P in a savings account that earns 6.75% ^{rate} interest compounded continuously. He plans to withdraw the money in 6 years^t to make a \$2500 down payment on a car. Will there be enough funds in his account in 6 years to meet his goal? Explain.

Feb 7-10:04 AM

Unit 3 Formative Graphing Assessment
Exponential and Logs

Name: Key
Period: _____

Given the table determine whether it represents a linear or exponential function. Justify your answer.

1.

X	Y
-2	27
-1	9
0	3
1	1
2	.333
3	.111

Linear Exponential
Justify: Multiply by 1/3 each time

2.

X	Y
-2	10
-1	5
0	0
1	-5
2	-10
3	-15

Linear Exponential
Justify: Subtracts 5 (or add -5 each time)

Graph the following function and give the necessary information.

3. $y = 3^x - 2$
y Intercept: (0, -1)
Asymptotes: y = -2
Growth or decay? Growth
x Intercept: (1.58, 0)
We will discuss

4. $f(x) = 3 \cdot (0.5)^x$
y Intercept: (0, 3)
Asymptotes: y = 0
Growth or decay? decay
x Intercept: None

5. Without graphing, determine whether the following function is exponential growth or decay. Justify your reason.

$$f(x) = \left(\frac{4}{3}\right)^{x-2}$$

growth because $\frac{4}{3}$ is greater than 1.

6. Using the above function modify the parent function so that the following transformation is true.

Right 4, down 6

New equation: $f(x) = \left(\frac{4}{3}\right)^{x-2-4} - 6 = \left(\frac{4}{3}\right)^{x-6} - 6$

7. $y = \log_2(x+3)$
x Intercept: (-2, 0)
Asymptote: x = -3
y Intercept: (0, log₂ 3)

$2^y = x+3$