

Where + When are X-values

What is y-value

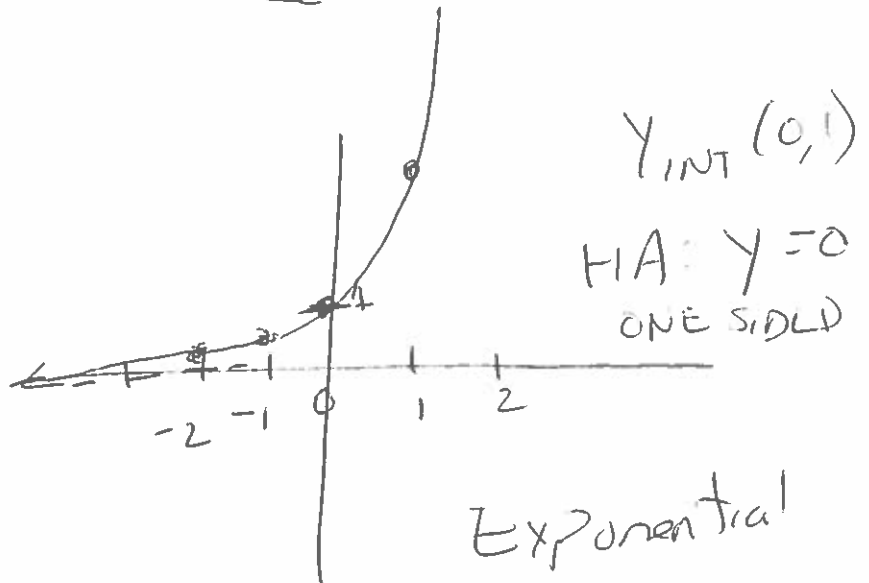
Identity is (x, y)

Exponential Functions

$$y = B^x$$

Base \swarrow B \searrow Exponential x

x	3^x
-2	$3^{-2} = \frac{1}{9}$
-1	$3^{-1} = \frac{1}{3}$
0	$3^0 = 1$
1	$3^1 = 3$
2	$3^2 = 9$



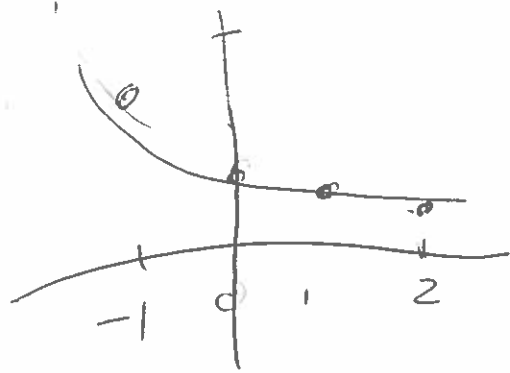
$B > 1$ Growth

$$B=1$$

$$y = 1^x$$

$$0 < B < 1$$

$$y = \left(\frac{1}{2}\right)^x$$

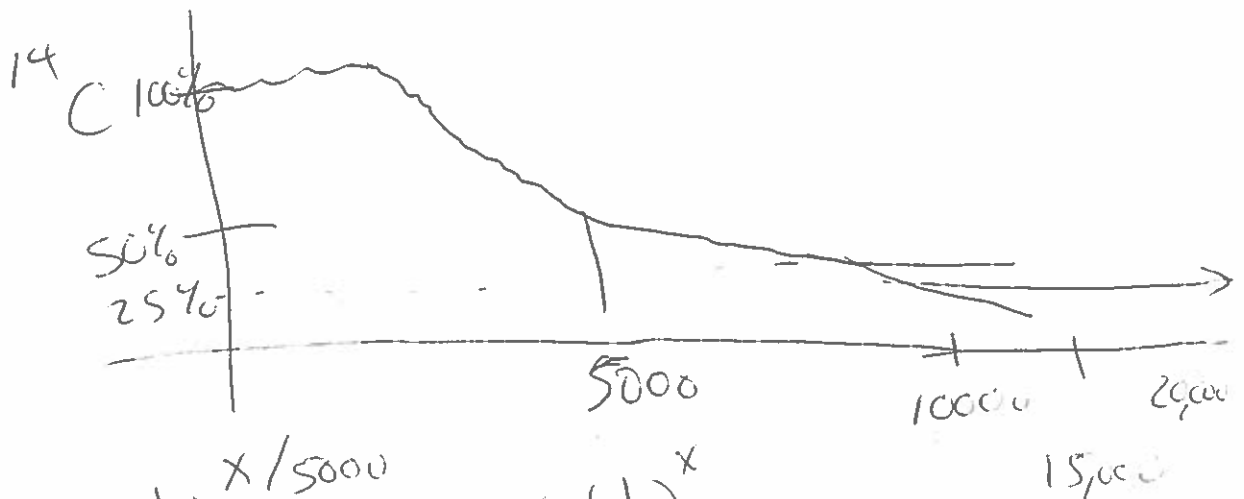


Exponential
Decay

Half Life

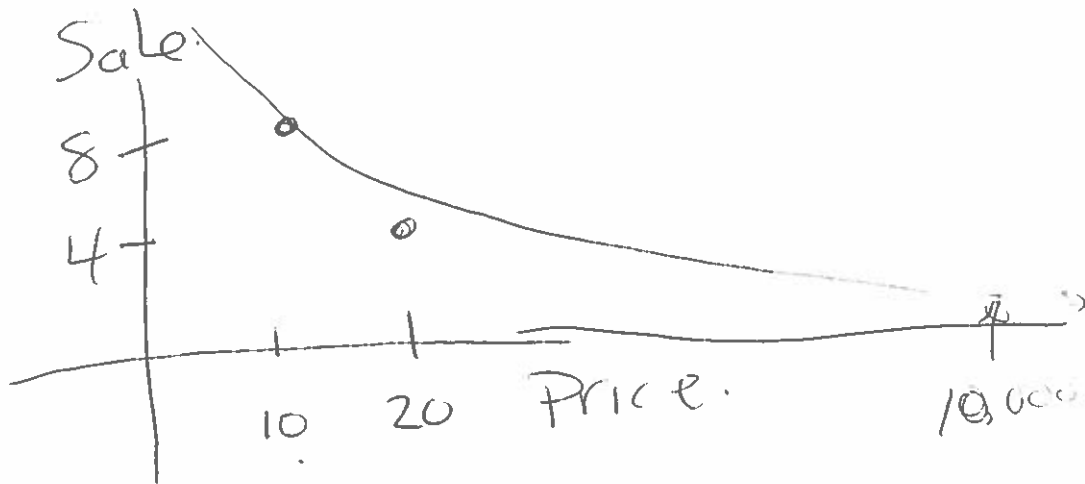
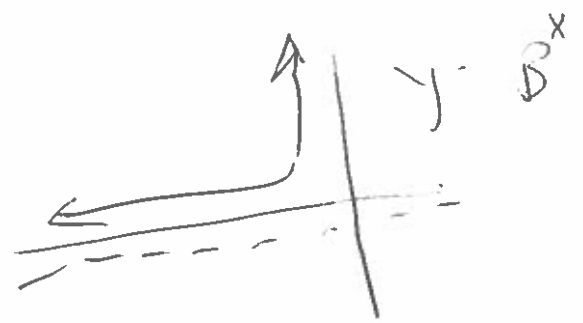
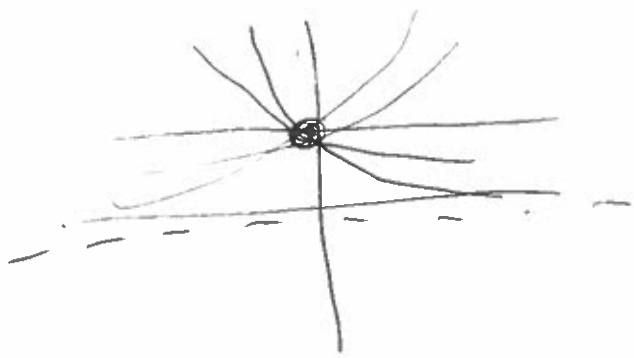
is the amount

of Time it takes
for a substance to
be cut in half.



$$P = 100\% \left(\frac{1}{2}\right)^{x/5000}$$

x	$\left(\frac{1}{2}\right)^x$
-2	$\left(\frac{1}{2}\right)^{-2} = 4$
-1	$\left(\frac{1}{2}\right)^{-1} = 2$
0	$\left(\frac{1}{2}\right)^0 = 1$
1	$\left(\frac{1}{2}\right)^1 = 1/2$
2	$\left(\frac{1}{2}\right)^2 = 1/4$



Regression Exponential

$$y = \underbrace{a}_{\text{stretches}} \times b^x$$

GROUP NAME:

Date: 2/25

Student Names (First and Last)

Speaker/Presenter: Melissa Scarpati

Writer/Prep: Angelica Ippolito

Leader/Collaborator: Vicini Finiguay

Independent Variable (x-axis): hours

Dependant Variable (y-axis): bacteria growth

Conclusion (in words):

The more hours you go without washing your hands, the more the bacteria grows - exponentially.

Supporting Work: $b = 1.5$ (in thousands)

x	b^x
0	$(1.5)^0 = 1$
4	$(1.5)^4 = 5.0625$
8	$(1.5)^8 = 25.6289$
12	$(1.5)^{12} = 130.77$
16	$(1.5)^{16} = 656.1$
20	$(1.5)^{20} = 3,325$
24	$(1.5)^{24} = 16,834$

[STAT] 1: Edit

[STAT] > CALC 0: ExpReg

$$y = a \cdot b^x$$

$$y = .9896... (1.5006...)^x$$

[V=] [Vars] 5: [>] [enter] [Graph]

[ZOOM] 9:

[ZOOM] 3:

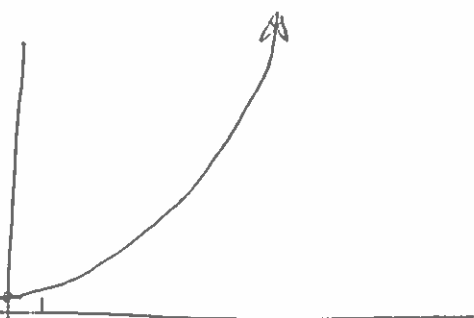
[2nd] [window]

Independent: Ask

[2nd] [Graph]

x	y
48	2.86×10^8

If you don't wash your hands for 48 hours, 2.86×10^8 bacteria form on your hands.

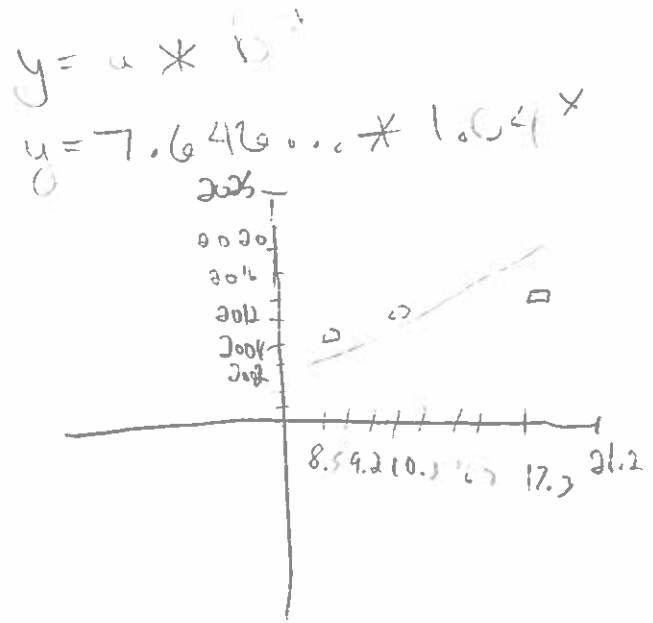


GROUP NAME: <u>Pro Calc Invaders</u>	Student Names (First and Last)
Date: <u>2/2/2019</u>	Speaker/Presenter: <u>Joey Stevens</u>
Independent Variable (x-axis): <u>population in mil</u>	Writer/Prep: <u>Zolboo Baccus</u>
Dependant Variable (y-axis): <u>years</u>	Leader/Collaborator: <u>Micah Cortinier</u>

Conclusion (in words):
By 2025, NJ population will be

Supporting Work:

Year	Popula:
t_1	t_2
2002	8.6 mil
2004	9.2 mil
2006	9.8 mil
2010	10.5 mil
2020	17.2 mil



exponential growth

GROUP NAME: Team 100

Student Names (First and Last)

Date: _____

Speaker/Presenter: I' Ampo'3a

Independent Variable (x-axis): Sell (TV)

Writer/Prep: Clifford Washington

Dependant Variable (y-axis): Cost

Leader/Collaborator: _____

Conclusion (in words): if we sell TV for \$70 we will sell more, but if we sell for \$65 we will sell less money.

Supporting Work:

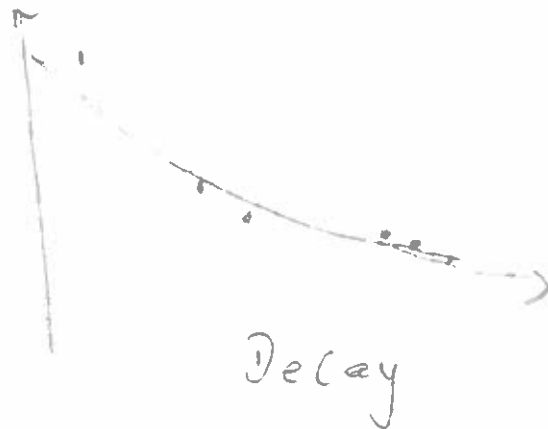
X	Y
20	25
25	20
40	15
55	12
60	10
80	9

Exp 1/25

$$y = a \times b^x$$

$a = 56.5055 \rightarrow 56.5055$

$b = .97 \rightarrow 1 - .03 = .97$



Prediction
10 → 42, 300

GROUP NAME: This Group, Best Group

Date: 2/25/14

Student Names (First and Last)

Speaker/Presenter: Jesse Schurman

Writer/Prep: Billy Rafferty

Leader/Collaborator: Stephen Burns

Independent Variable (x-axis): Price of Laptop

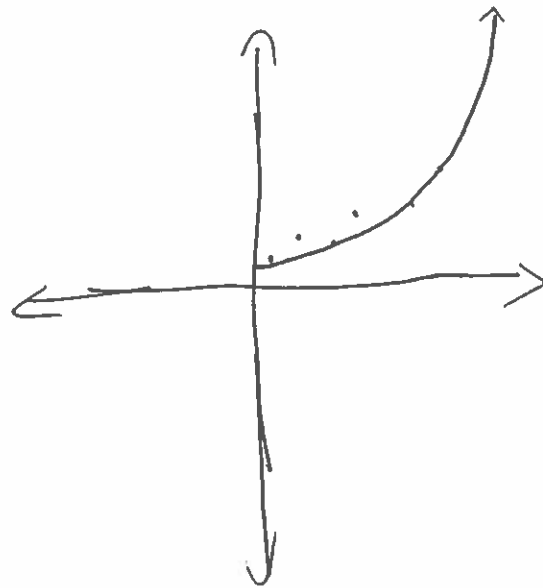
Dependant Variable (y-axis): Profit Made

Conclusion (in words):

If we charge \$1,500 we will make a \$500 profit

Supporting Work:

Price of Laptop	Profit
\$300	\$36
\$500	\$96
\$700	\$25
\$900	\$205
\$1100	\$255



Exponential Regression
 $y = a \cdot b^x$

Exponential Growth

$$y = 22.923... \cdot 1.0023^x$$

GROUP NAME: Newbies

Date: 2/25/14

Student Names (First and Last)

Speaker/Presenter: Li-Yang Lu

Independent Variable (x-axis): price

Dependant Variable (y-axis): Revenue of Laptop

Writer/Prep: Alroy, Paul, Justin

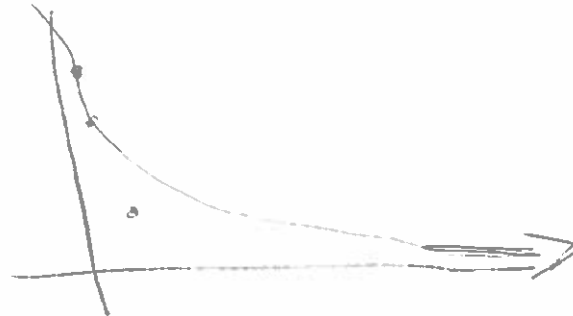
Leader/Collaborator: _____

Conclusion (in words): Decreasing Exponential

Supporting Work:

$$y = 34917.5 + 0.99^{-x}$$

X	Y
1250	37500
2000	30000
3000	18000
5000	10000



GROUP NAME:

Student Names (First and Last)

Date: _____

Speaker/Presenter: _____

Independent Variable (x-axis): Speed

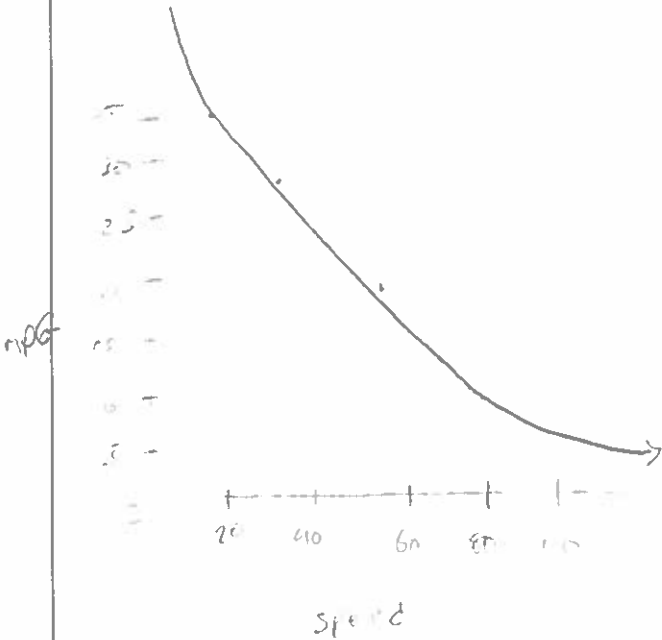
Writer/Prep: _____

Dependant Variable (y-axis): mpg

Leader/Collaborator: _____

Conclusion (in words): If you travel 100 mph you will get 13 mpg

Supporting Work:



L1	L2
25	30
45	28
65	20
70	18
80	15

insert data

Stat 1:

calculate regres: on

Stat → 9:

insert into y=

y= Var 1 1

Graph

VIEW data

2nd Graph

Decay

GROUP NAME:	Student Names (First and Last)
Date: <u>2/25/14</u>	Speaker/Presenter: <u>Berny J. Infante</u>
Independent Variable (x-axis): <u>years</u>	Writer/Prep: <u>Christian Guerra</u>
Dependant Variable (y-axis): <u>Money in Bank</u>	Leader/Collaborator: <u>Blake Little / Guillermo</u>

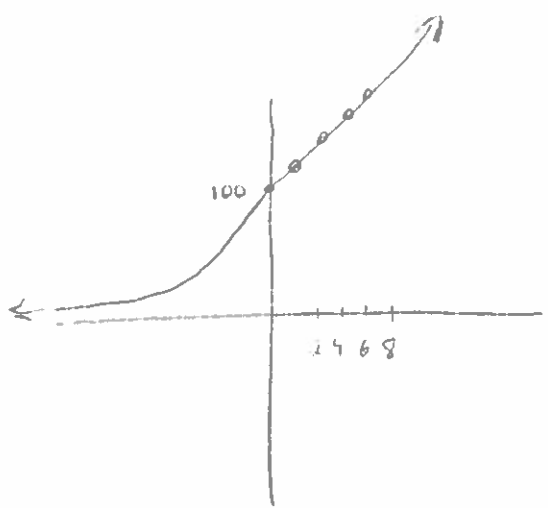
Conclusion (in words):
 The money grows exponentially. If you invest \$100 in a bank that has a 3% interest rate, after 100 years in the bank you will have \$1841.60.

Supporting Work:

Years	\$
x	y
0	100
2	106
4	112.36
6	117.10
8	122.246
100	1841.60

$$y = a \cdot b^x$$

$$y = 99.99 \times 1.03^x$$



GROUP NAME:

Student Names (First and Last)

Date:

Speaker/Presenter: Victoria F...

Independent Variable (x-axis): Time (hours)

Writer/Prep: Craig Sharrocks

Dependant Variable (y-axis): Number of colonies

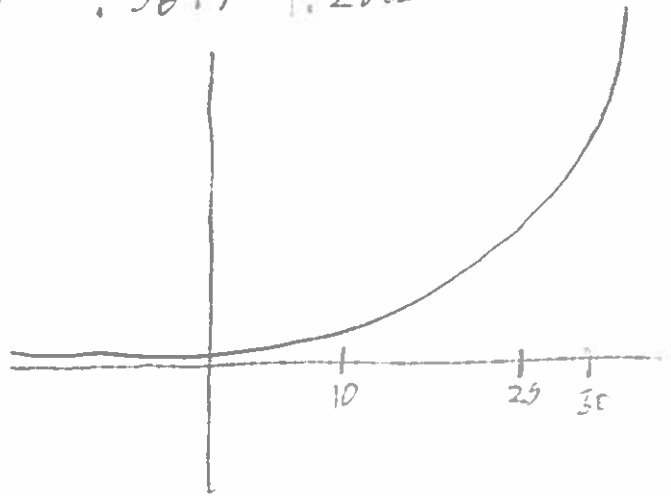
Leader/Collaborator: Zachary Lebbaniz

Conclusion (in words): At 30 hours there will be 738 colonies, if it grows at a rate of 1.2885 per hour.

Supporting Work:

X	Y
5	1
10	5
15	25
20	70
25	151

$$Y = .3679 \cdot 1.2885^x$$



$$738.35 = .3679 \cdot 1.2885^{(30)}$$

GROUP NAME: Math/

Student Names (First and Last)

Date: _____

Speaker/Presenter: Noor Chasma

Independent Variable (x-axis): price

Writer/Prep: Math/

Dependant Variable (y-axis): sell (watch)

Leader/Collaborator: Osman Rehman

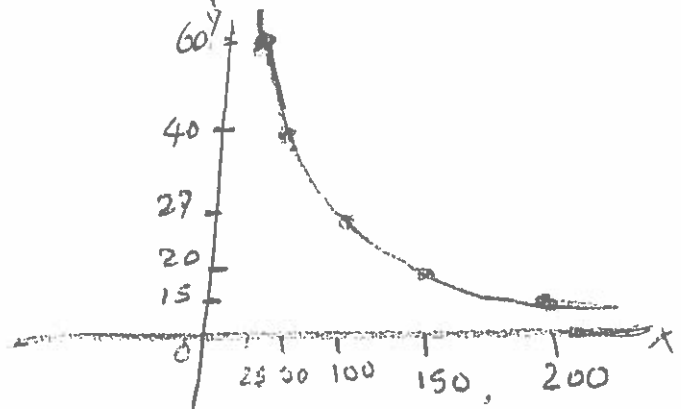
Conclusion (in words):

If we sell the watch for \$250, 9,596 people will buy it. (prediction)

Supporting Work:

Exponential

X	Y
200	15
150	20
100	27
50	40
25	60



Decay

Exp Reg

$$Y = a * b^x$$

$$a = 63.41268244$$

$$b = .9924751667$$

Predictions

X	Y
250	9,596

GROUP NAME: 10000
 Date: 2-25-

Student Names (First and Last)
 Speaker/Presenter: LOUIE KENNETH

Independent Variable (x-axis): time (min)
 Dependant Variable (y-axis): cupcakes

Writer/Prep: Marta Trzaskowski
 Leader/Collaborator: yvette Aguilar

Conclusion (in words): In 305 min we will make 307 cupcakes
if we make 1 cupcake in 1 min we will only make

Supporting Work:

X	Y
20	24
35	48
47	72
67	96
78	120

3097 1.05

0.16