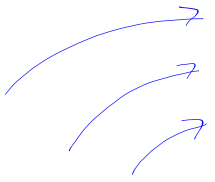
There is no

Warm Up

but have your HW out. :)

HW QUESTIONS



Check Your Solutions

after looking at the solutions, let me know if you want me to go over a problem.

B. ... 64 d

$|x| = 14$

$|x| = 14$

$|-6|$

$|x-3| + 5 = 11$

isolate | |

$|x-3| = 6$

$x - 3 = 6$ $\quad +3 \quad +3$

$x - 3 = -6$ $\quad +3 \quad +3$

$x = 9 \qquad x = -3$

D $\dfrac{2(3x)^2}{(3x)^{-2}}$

$2(3x)^2 \cdot (3x)^2$

$2 \cdot 9x^2 \cdot 9 \cdot x^2$

C $\dfrac{2(3x)^2}{3x^3}$

$\dfrac{2 \cdot 3 \cdot 3 \cdot x^2}{3 \cdot 3 \cdot x^3}$

$\dfrac{6}{x}$

A

121 b

123 c $\dfrac{2(3x)^2}{3x^3}$

123 d

$$\frac{2(3x)^2}{(3x)^{-2}}$$

B 48 d) $(2y-1)(y^2+7)$

AGENDA

★ Objective

(A) Create an exponential model using a new technique.

(B) Shrinking Targets

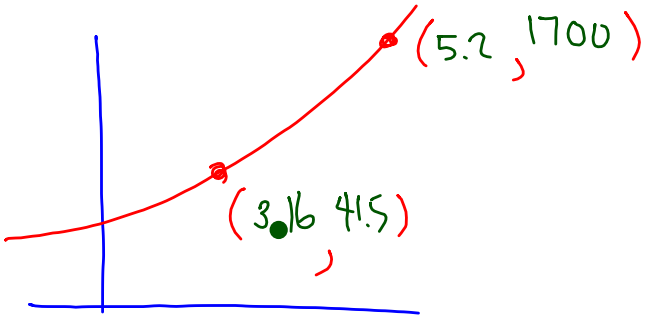
★ We'll start Ch. 2 on Monday

title

Create Exponential functions using double Substitution

↳ method works on many types of functions

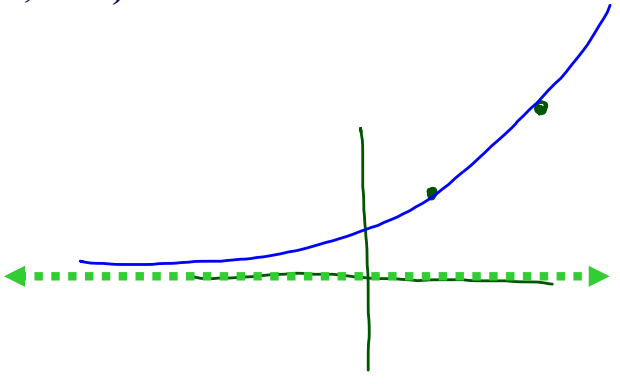
What if values not so friendly?



Example 1 Solve using the double substitution Method

$y = ab^x$

Find the equation of an exponential function with an asymptote at y = 0 that passes through the points (2, 16) and (6, 256).



$(2, 16)$ $(6, 256)$

$y = ab^x$ $y = ab^x$

$16 = ab^2$ $256 = ab^6$

Solve for a

$a = \frac{16}{b^2}$

$256 = \left(\frac{16}{b^2}\right) b^6$

$256 = 16b^4$

$b^4 = \frac{256}{16}$

take 4th root of both sides

$b = 2$

$a = \frac{16}{2^2} = 4$

function

$y = 4(2)^x$

$2x + 3y = 10$ $-6x + 9y = 8$

$2x + 3y = 10$

$-6x + 9y = 8$

$16 = ab^2$ $256 = ab^6$

$a = \frac{256}{b^6}$

$16 = \frac{256}{b^6} \cdot b^2$

$16 = \frac{256}{b^4}$

$\frac{16}{1} = \frac{256}{b^4}$

$b^4 = \frac{256}{16}$

a 2nd way

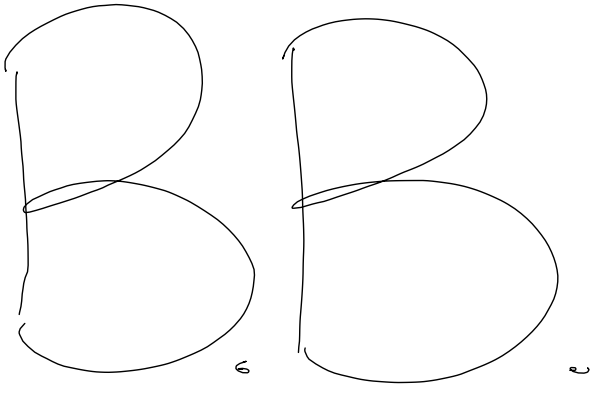
$16 = ab^2$ $256 = ab^6$

Find the equation of the exponential function ($y = ab^x$) that pass through $(3, 26{,}568)$ and $(5, 956448)$

Example 2

$(3, 26{,}568)$ and $(5, 956448)$

$y = ab^x$ $y = ab^x$



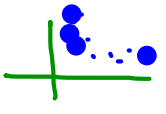
Everyone title your Notes: Ch. 2

"Transformations"

Aim

1 View non-linear data,

2 Make a scatter plot of the data



3 "Fit" an equation to that data y=

4 Then, make predictions with the equation.

- There are 8 circles.... A, B, C, ... H
- **The mass and radius was measured for each one.**

8 circles

$y = \frac{x^2}{23}$

for 30 cm

$y = \frac{30^2}{23}$

$= 39$

radius (cm)	mass (gm)
2.4	0.2
2.9	0.4
3.7	0.6
5.0	1.1
5.8	1.5
6.5	1.9
7.5	2.6
8.4	3.0

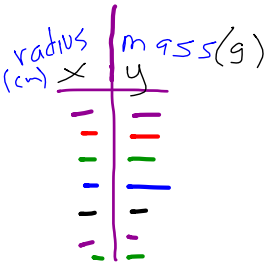
Prediction of mass of 30 cm disk

$A = \pi r^2$

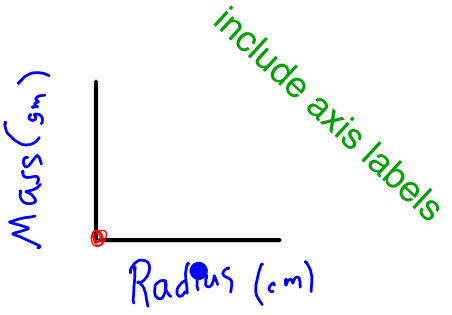
$f(r) = x^2$

With the data from all 8 circles, each of you should

a) make a table. with headings



b) **Do not graph, <u>Instead</u> predict the graph (in a 15 second sketch)**



c) **What should the x- and y-intercepts be?**

radius (cm)	mass (grams)
2.5	
2.75	
3.6	
5.0	
5.8	
6.5	
7.5	
8.2	

rad (cm)	mass (g)
2.5	1.7
2.75	2
3.6	3
5	5.8
5.8	8.0
6.5	12
7.5	11
8.2	16

Guesses for the mass of a plate with a radius of 20 cm ?

Graph the data using a Graphing Calculator

- Clear out old data (if any)
- Enter the new data
- Create a scatter plot

- Decide the best type of function to use to model the data

can use the Graphing Calculator Instrutions

What type of function?

The Mass depends on πr^2

suggests a quadratic

$y = x^2$

Make adjustments to your equation to "fit" to the data. $y = x^2$

Write down your final equation.
Use it to predict the mass of a target with a radius twice as large as the largest circle (circle A)

Assignment

Appendix B....53ab, 73, 89, and 94

(Use method from class today)

and 2.... 6, 9