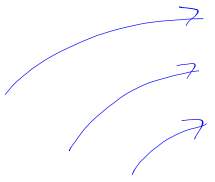
There is no

Warm Up

HW QUESTIONS



(A) List the first 4 terms of a sequence that has an explicit formula of $t_n = 2(3)^n$

Check Your Solutions

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

A

121 b

123 c

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

$$\frac{2 \cdot 9 \cdot x^2}{3x^3 \cdot x}$$

$$\boxed{\frac{6}{x}}$$

123 d

$$\frac{2(3x)^2}{(3x)^{-3}} = \frac{2 \cdot 9 \cdot x^2 (3x)^3}{1}$$

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

$$\boxed{162x^4}$$

B 48 d) $(2y-1)(y^2+7) = 2y^3-y^2+14y-7$

	y^2	$+7$
$2y$	$2y^3$	$14y$
-1	$-y^2$	-7

48 a x^2-6x+9

48 b $4m^2+4m+1$

48 c x^3-2x^2-3x

35 a $y=15(5)^x$

b) $y=151(.8)^x$

61 a) $y = 500(1.08)^x$

b) ~~$170~~
$1712.97

c) $0 < x < \infty$

$500 \leq y < \infty$

64

a) $a = 0$

b) $m = \frac{16}{17}$

c) $x = 10$

d) $x = 9$
$x = -3$

AGENDA

★ Objective

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

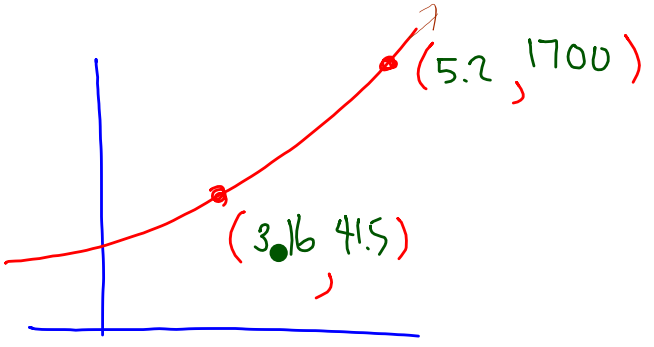
(B) Shrinking Targets

title

Create Exponential functions using double Substitution

↳ method works on many types of functions

What if values not so friendly?

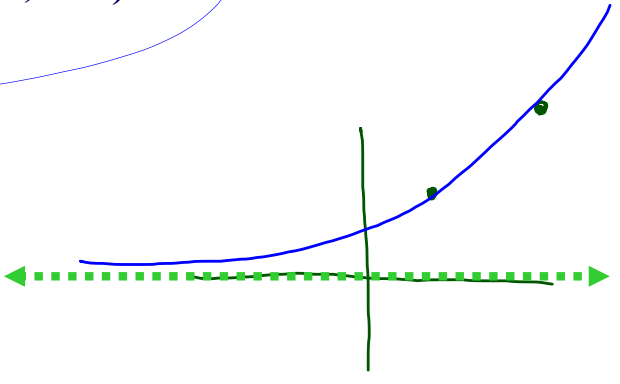


Example 1 Solve using the double substitution Method

$y = mx + b$

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

$y = ab^x$



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

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

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

Solve for a

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

$256 = \frac{16}{1} \cdot \frac{b^6}{b^2}$

$16b^4 = 256$

divide by 16

$b^4 = 256$

$\sqrt[4]{\quad}$ $\sqrt[4]{\quad}$

$b = 2$

$a = \frac{16}{(2)^2}$

$= 4$

Expon. Function

$y = 4(2)^x$

$16 = ab^2$ $\frac{256}{16} = \frac{ab^6}{ab^2}$

$\frac{16}{256} = \frac{ab^2}{ab^4}$ $16 = b^4$

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

$\sqrt[4]{\quad}$ $\sqrt[4]{\quad}$

$b = 2$ same!

$2x = 10$

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

a 2nd wait

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

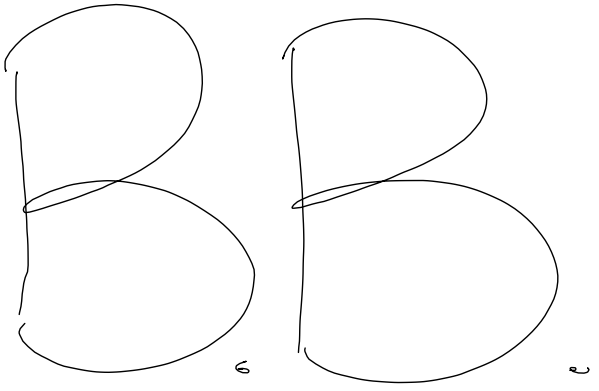
$y = ab^x$ $y = ab^x$

$26568 = ab^3$ $956448 = ab^5$

Example 2

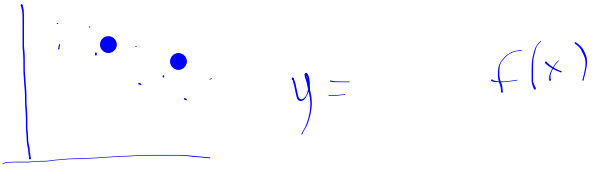
$(3, 26{,}568)$ and $(5, 956448)$

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



Everyone title your Notes: Ch. 2

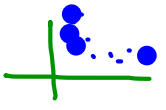
"Transformations"



Aim

1 View non-linear data,

2 Make a scatter plot of the data



3 "Fit" an equation to that data y=

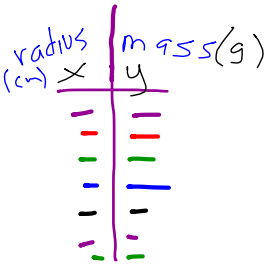
4 Then, make predictions with the equation.

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

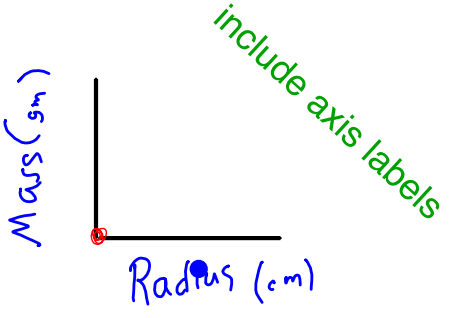
41.3 g

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?**

41.3

	radius (cm)	mass (grams)
(A)	8.2	2.8
f	3.6	.4
B	7.5	2.2
(G)	2.75	.1
C	6.5	1.6
e	4.82	0.9
D	6	1.2

Predict the mass of a 20 cm disk

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)

Now determine the mass of a plate with a radius of 20 cm.

Assignment

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

(Use method from class today)

and 2.... 6 and 9