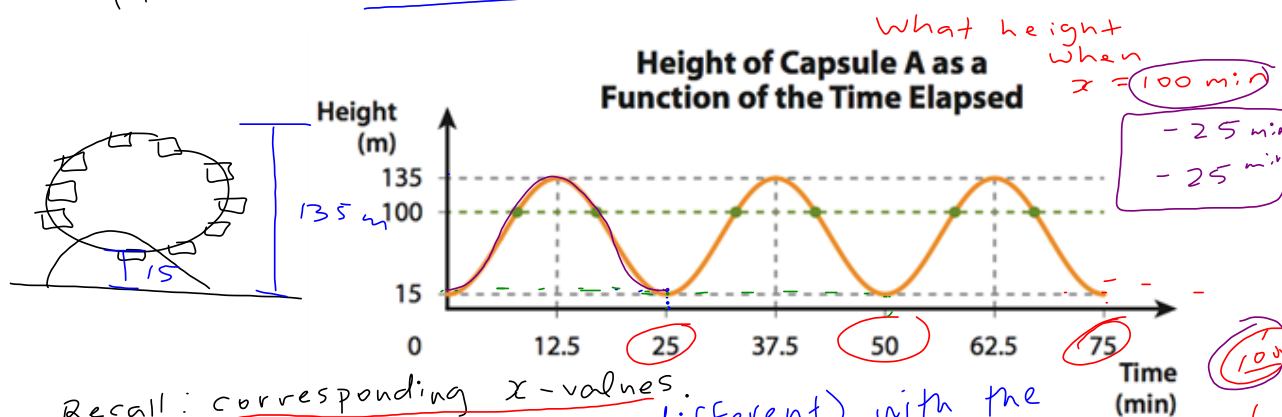


Recall: Periodic Functions



Recall: corresponding x-values.
• the x's (that are different) with the same y.

v. typical exam question

Find the height of a rider after 87.5 mins

step i. Highlight one cycle and calculate length/duration of period.

$$P = 25 \text{ min}$$

step ii. Identify given x and find x' - corresponding x

$$x' = x - kP, \quad k \in \mathbb{Z} \quad \rightarrow \text{whole \#}$$

step iv. use $\lfloor \cdot \rfloor$ to find x'

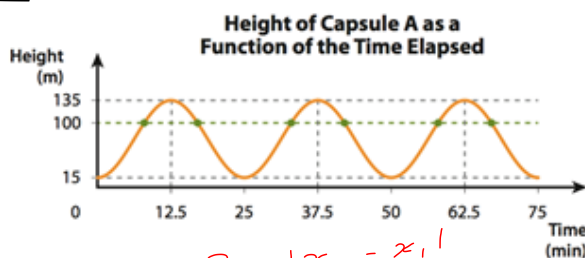
$$x' = 87.5 - 3(25)$$

$$x' = 12.5$$

step v. find $f(12.5)$ (read from graph)

$$f(12.5) = 135 \text{ m} = f(87.5)$$

\therefore a rider is at 135m after 87.5 mins.



$$P = |x_2 - x_1|$$

$$P = 25 \text{ mins.}$$

step iii. find k -

$$k = \left\lfloor \frac{x}{P} \right\rfloor \quad \begin{matrix} \text{(round down)} \\ \text{(take 'integer')} \end{matrix}$$

$$k = \frac{87.5}{25} = 3.5$$

$$k = 3$$

Lesson 9 : Graphing Exponential Functions

$$f(x) = a b^x$$

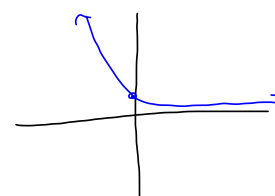
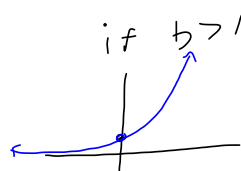
$$y = a b^x$$

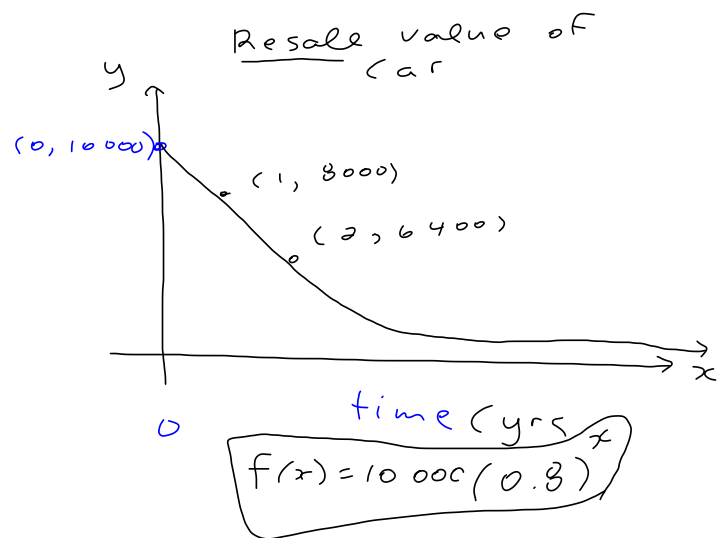
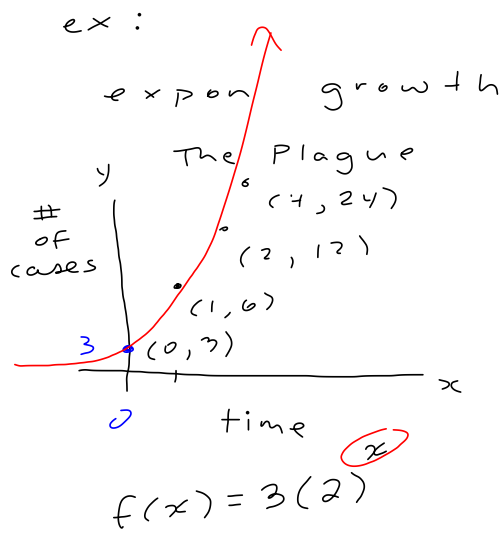
variables

parameters

a = initial value - $(0, a)$
 b = multiplication base
 $b > 0$
 $b \neq 1$

b can't be negation
 nor 1
 if $b < 1$





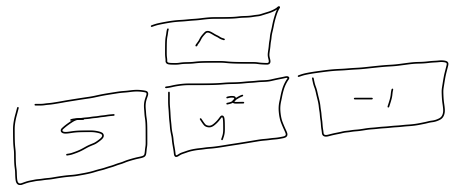
Important for Graphing :

Recall : exp #'s

$$\text{ex } 5^2 = 25$$

$$5^{-1} = 0.2$$

$$5^{-2} =$$

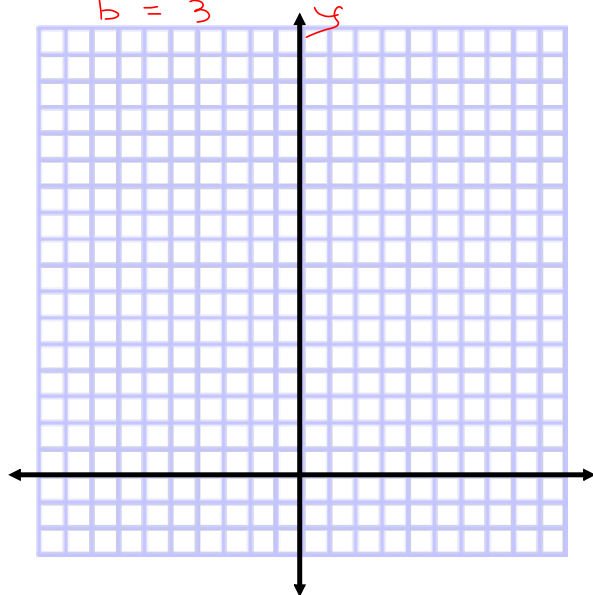


graph

$$f(x) = 2(3)^x$$

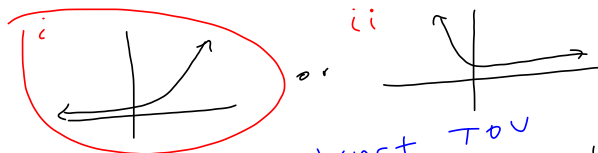
$$y = a b^x$$

$a = 2 \therefore (0, 2)$
 $b = 3$



step i. identify which function and write equation

step ii. find $(0, a)$ IV and b to see if



step iii Construct TOU

x	y
-2	?
-1	?
0	a
1	?
2	?

$f(x) = 2(3)^x$
 $f(-2) = 2(3)^{-2}$
 $f(-1) = 2(3)^{-1}$
 $f(0) = 2(3)^0 = 2$
 $f(1) = 2(3)^1 = 6$
 $f(2) = 2(3)^2 = 18$

x	y
-2	0.2
-1	0.6
0	2
1	6
2	18

step iv. Plot point draw curve.

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

Hmwk: pg 102 #3 / #4

pg 104 #1 a) b)

pg 97 #10 b)

pg 105 #4 a) - c) (graphing will help to answer)