Problems over packet.

#5 (not continuous) (decay)

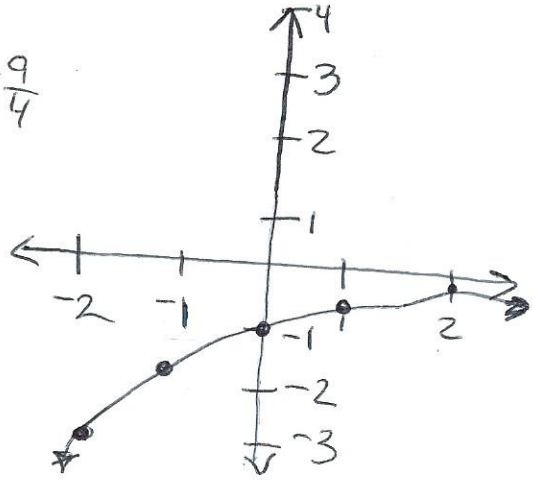
$P(1-r)^t \Rightarrow 3900(1-0.0475)^8 = \boxed{2642\ km^2}$

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

HA → $y=0$

Plot Points

x	y
-2	$-\left(\frac{3}{2}\right)^{-2} = -\left(\frac{3}{2}\right)^2 = -\left(\frac{9}{4}\right) = -\frac{9}{4}$
-1	$-\left(\frac{3}{2}\right)^{-1} = -\left(\frac{3}{2}\right)^1 = -3/2$
0	$-\left(\frac{3}{2}\right)^0 = -\left(\frac{3}{2}\right)^0 = -1$
1	$-\left(\frac{3}{2}\right)^{-1} = \frac{-1}{\frac{3}{2}} = -\frac{2}{3}$
2	$-\left(\frac{3}{2}\right)^{-2} = \frac{-1}{\left(\frac{3}{2}\right)^2} = -\frac{1}{\frac{9}{4}} = \frac{-4}{9}$



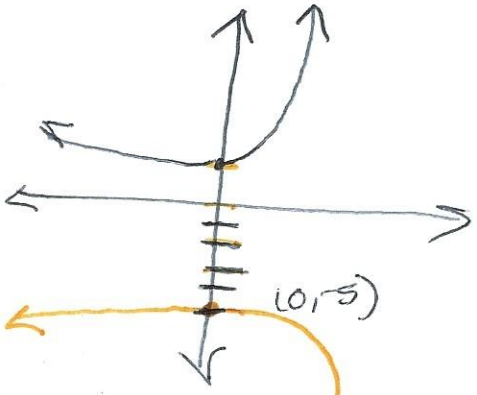
Parent $y=e^x$

#11 Graph $y = -e^x - 4$

V.T.
reflect over x-axis

H.T.
Down 4

↑ happens first



#17 $r = -0.17$ $t = 4$ $P = 6149$

(continuous)

$Pe^{rt} = 6149e^{-0.17(4)}$

$= 3115.2kg$

Inverse of exponential function.

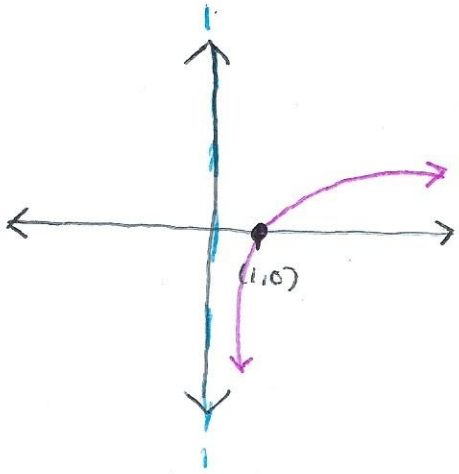
Logarithmic functions

$f(x) = \log_b(x)$ $\quad b > 0,\ b \neq 1$

Domain: $(0, \infty)$

Range: $(-\infty, \infty)$

Vertical A. @ $x = 0$



How to evaluate a Logarithm

ex1 $\log_2(8) \Rightarrow 2^{?} = 8$

$? = 3$

$\log_2(8) = 3$

ex2 $\log_7(1) \Rightarrow 7^{?} = 1$

$? = 0$

$7^0 = 1$

$\log_7(1) = 0$

ex3 $\log_5\left(\frac{1}{25}\right) \Rightarrow 5^{?} = \frac{1}{25}$

$? = -2$

$5^{-2} = \frac{1}{5^2} = \frac{1}{25}$

$\log_5\left(\frac{1}{25}\right) = -2$

Logarithmic form → exponential

$\log_a(b) = x \rightarrow a^x = b$

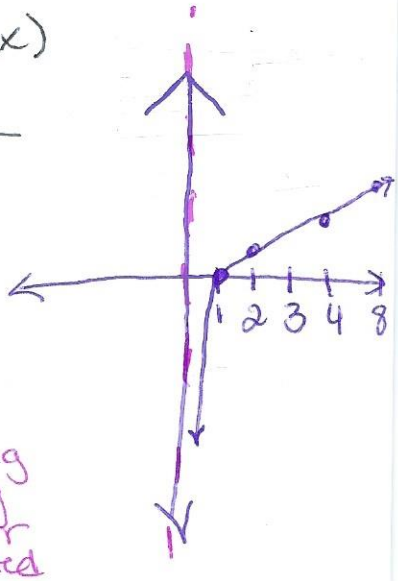
Exponential → Logarithmic form

$3^2 = 9 \rightarrow \log_3(9) = 2$

Picking values when graphing

$\log_2(x)$

x	y
1	0
2	1
4	2
8	3
16	4



nothing is being added or subtracted from the x

V. A $x = 0$

Natural logarithm $y = \text{Log}_e(x) = \text{Ln}(x) = \ln(x)$

Common logarithm $y = \text{Log}_{10}(x) = \text{Log}(x)$

Change of base formula: $\log_2(3) = \frac{\log(3)}{\log(2)} = \frac{\ln(3)}{\ln(2)}$

General terms: $\log_a b = \frac{\log(b)}{\log(a)} = \frac{\ln(b)}{\ln(a)}$

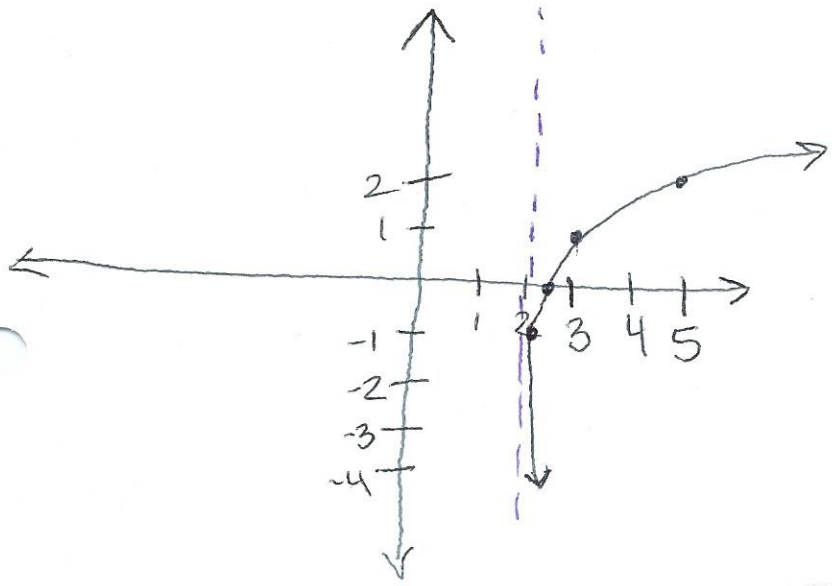
Graph: $y = \text{Log}_3(x-2)+1$

1. Create an x + y table
2. on y → list -2, -1, 0, 1, 2
3. Use the y-values as the exponents of 3 (base) and list them under x.
4. add 2 to the x-values because of (x-2)
5. add 1 to the y-values because of the +1 on the function

V.A. ⇒ $x = 2$

x	y
$\frac{1}{9}+2 = 2\frac{1}{9}$	$-2+1 = -1$
$\frac{1}{3}+2 = 2\frac{1}{3}$	$-1+1 = 0$
$1+2 = 3$	$0+1 = 1$
$3+2 = 5$	$1+1 = 2$
$9+2 = 11$	$2+1 = 3$

x	y
$2\frac{1}{9}$	-1
$2\frac{1}{3}$	0
3	1
5	2
11	3



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Precal - Palmer
Pg3