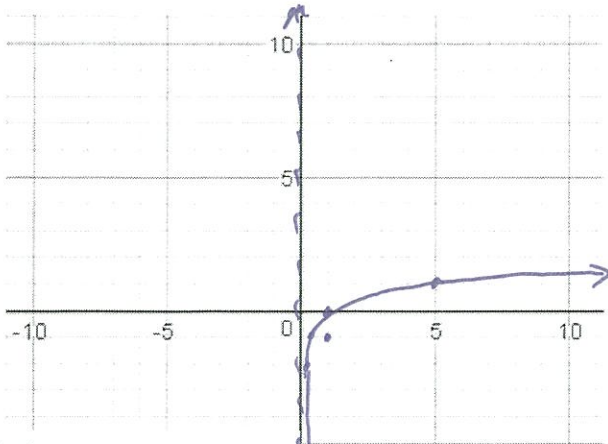


Graphing Logarithms

Graph the following exponential functions:

1) $f(x) = \log_5 x$



x	y
1/25	-2
1/5	-1
1	0
5	1
25	2

x	y
16	-2
4	-1
1	0
1/4	1
1/16	2

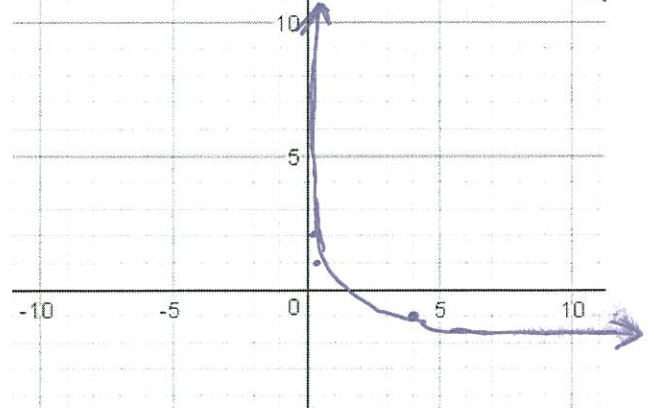
Think:

Exponential Form? $5^y = x$

x-intercept: $(1, 0)$

VA: $x = 0$

2) $f(x) = \log_{1/4} x$
or $f(x) = -\log_4 x$



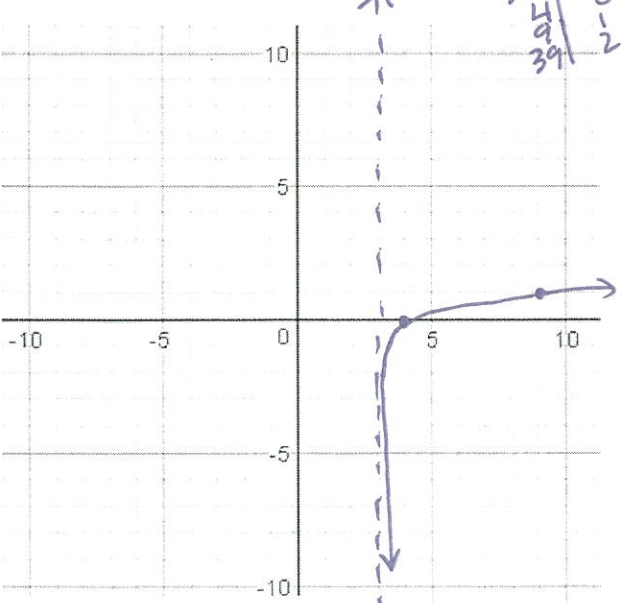
Think:

Exponential Form? $(\frac{1}{4})^y = x$

x-intercept: $(1, 0)$

VA: $x = 0$

* 3) $f(x) = -\log_6(x - 3)$



x	y
3 1/30	-2
3 1/6	-1
4	0
7	1
13	2

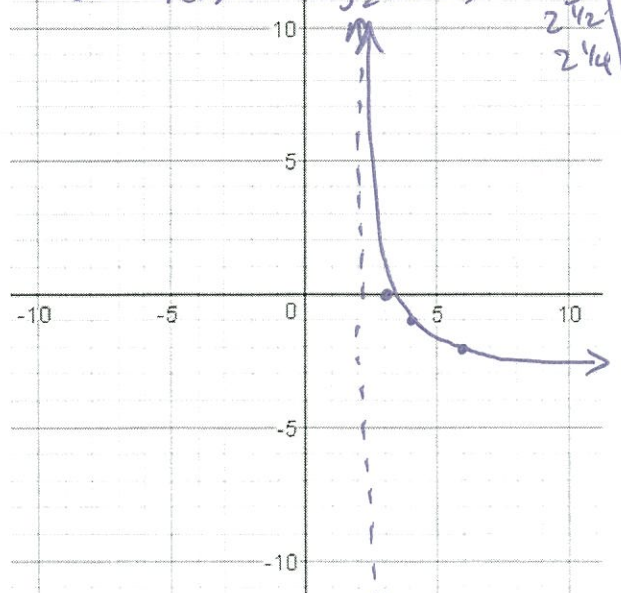
Think:

Exponential Form? $6^y = x - 3$ or $6^y + 3 = x$

x-intercept: $(4, 0)$

VA: $x = 3$

4) $f(x) = \log_{0.5}(x - 2)$
or $f(x) = -\log_2(x - 2)$



x	y
6	-2
4	-1
3	0
5	1
10	2

Think:

Exponential Form? $(\frac{1}{2})^y + 2 = x$

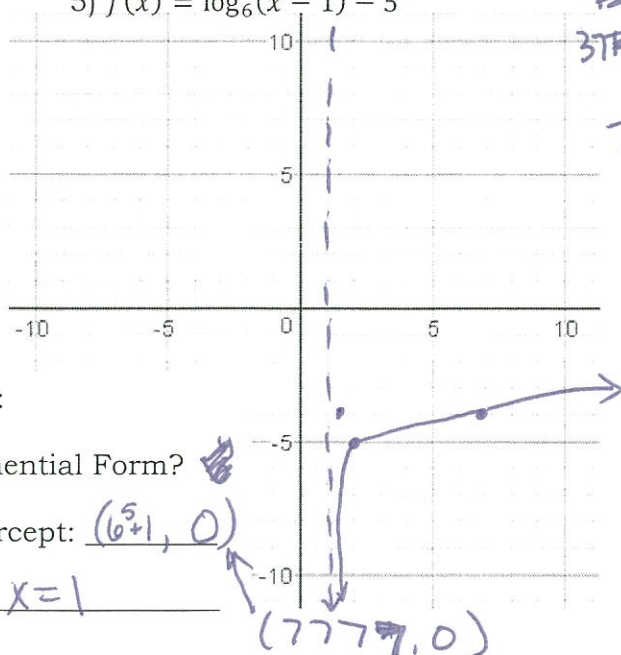
x-intercept: $(3, 0)$

VA: $x = 2$

So $y+5 = \log_6(x-1)$
 OR $6^{y+5} = (x-1)$

x	y
2	-5
7	-4
19	-3
37	-2
77	-1
157	0

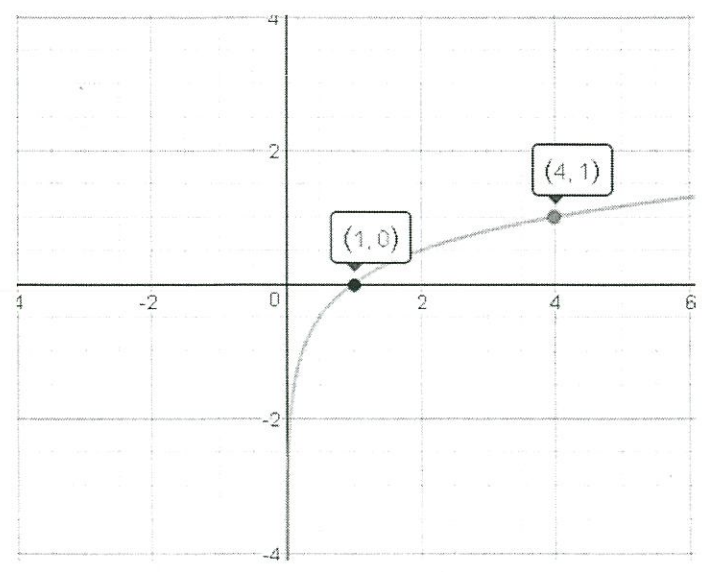
5) $f(x) = \log_6(x-1) - 5$



Think:
 Exponential Form?
 x-intercept: $(6^5 + 1, 0)$
 VA: $x=1$

Write the equation for the two graphs below:

7)



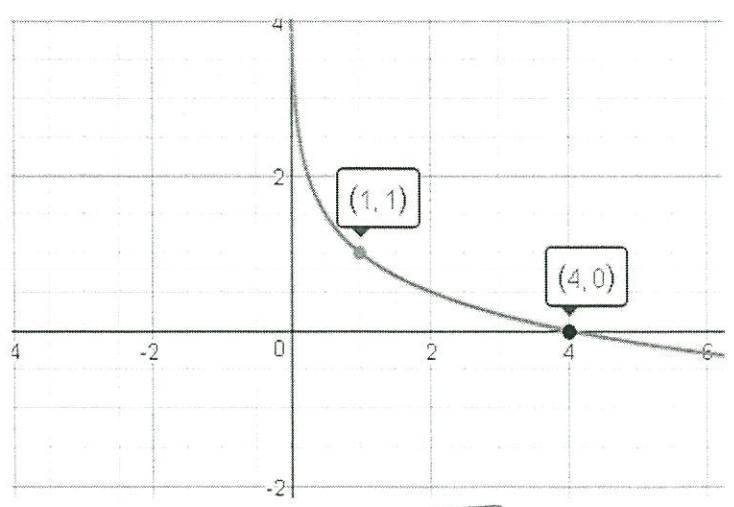
$b > 1$
 No shift / stretch
 $f(x) = \log_4 x$

Think exponential

x	y
1	0
4	1

 $4^y = x$

8)

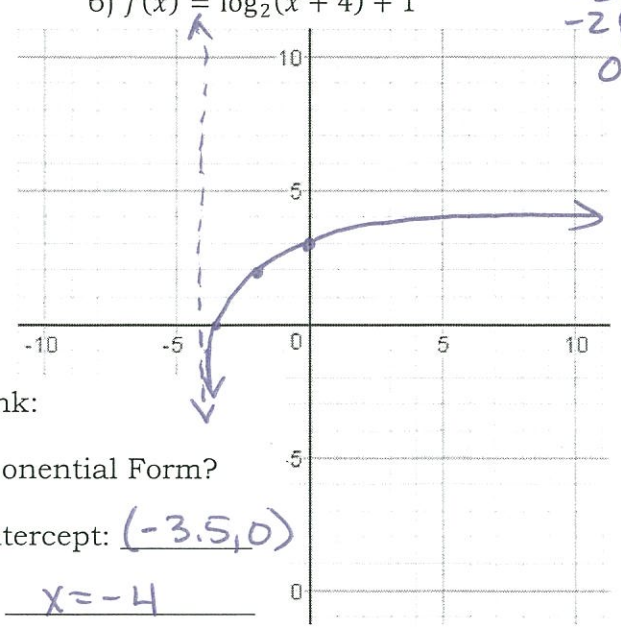


$b < 1$
 $y = \log_{\frac{1}{4}}(x) + 1$

x	y
1	1
4	0

$y-1 = \log_2(x+4)$
 $2^{y-1} = x+4$
 $2^{y-1} = 4 = x$

6) $f(x) = \log_2(x+4) + 1$



Think:
 Exponential Form?
 x-intercept: $(-3.5, 0)$
 VA: $x=-4$

x	y
-3.5	0
-2	1
-1	2
0	3