Key

1. Compare and contrast the graph of the exponential function and the logarithmic functions

$y = 3^x$

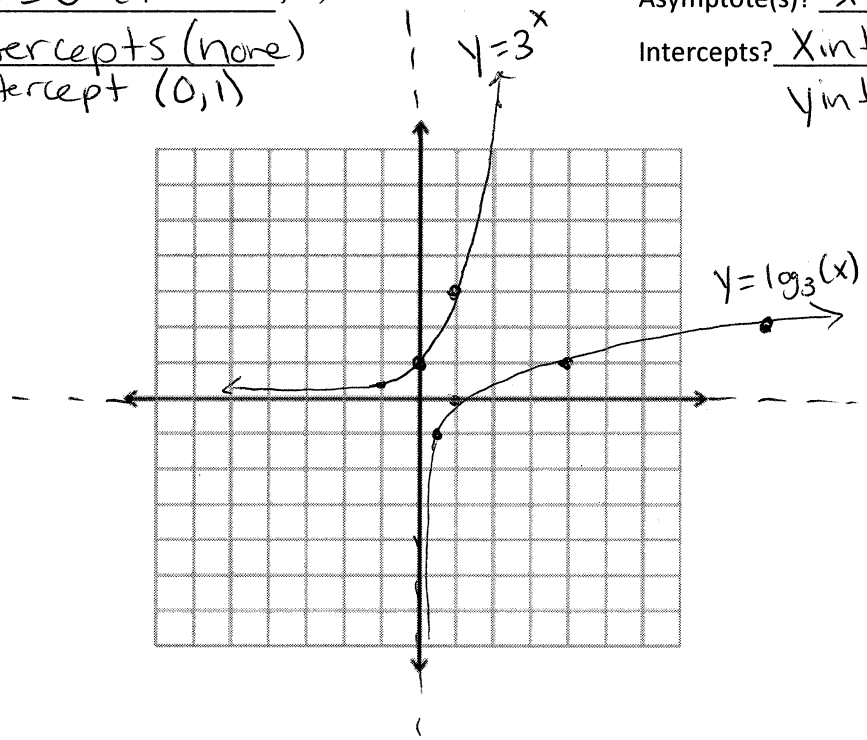
Domain: $(-\infty, \infty)$

Range: $(0, \infty)$

Asymptote(s)? $y = 0$ (Horizontal)

Intercepts? x-intercepts (none)
y-intercept (0,1)

0	1
1	3
2	9
-1	1/3



$y = \log_3 x$

Domain: $(0, \infty)$

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

Asymptote(s)? $x = 0$ (Vertical)

Intercepts? x-intercept (1,0)
y-intercept (none)

1/3	-1
1	0
3	1
9	2

Find the inverse function

2. $f(x) = 3^{x+2}$

$x = 3^{(y+2)}$

$\log_3(x) = y + 2$

$\boxed{y = \log_3(x) - 2}$

3. $f(x) = 6^{x-4}$

$x = 6^{y-4}$

$y - 4 = \log_6(x)$

$\boxed{y = \log_6(x) + 4}$

4. $y = \log_6 x$

$x = \log_6(y)$

$\boxed{6^x = y}$

5. $y = \log_4 x - 5$

$x = \log_4(y) - 5$

$x + 5 = \log_4(y)$

$\boxed{4^{x+5} = y}$