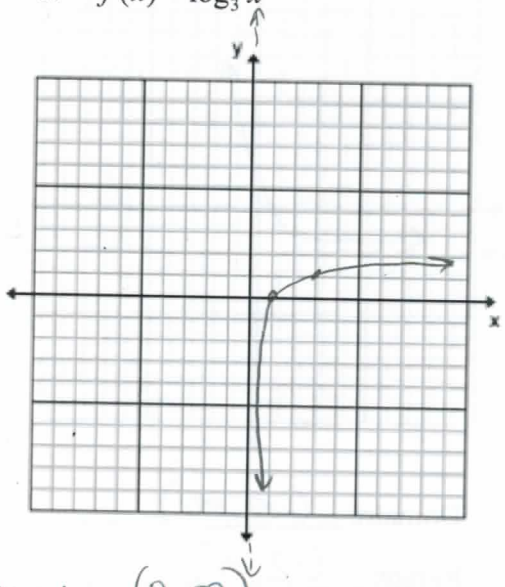
HA2T Unit 7.3 Day 2 WS

Name Key

Sketch the graph and state the domain, range, and any transformations of the function. Then, find its inverse.

1. $f(x) = \log_3 x$



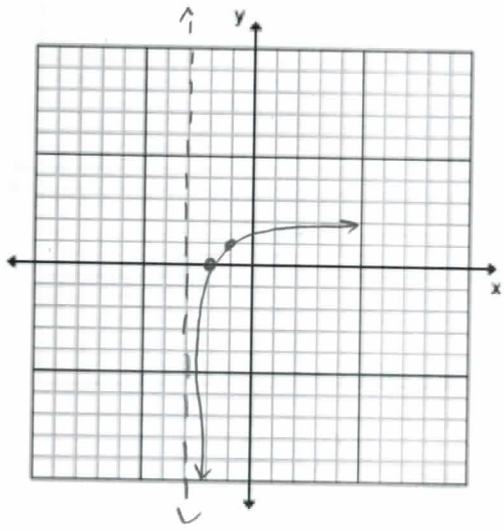
Domain: $(0, \infty)$

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

Asymptote: $x = 0$

Intercept: $(1, 0)$

2. $f(x) = \log_2 (x+3)$



Domain: $(-3, \infty)$

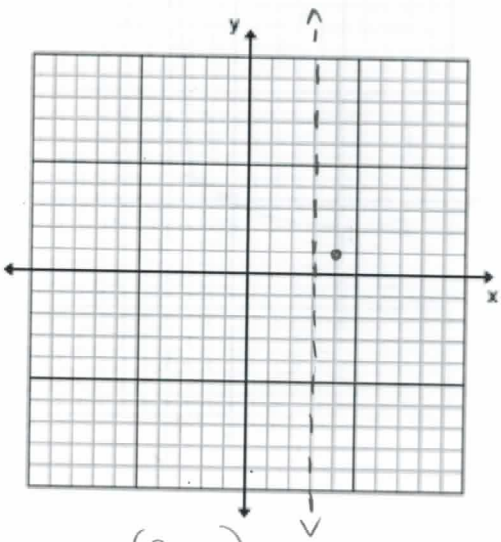
Range: $(-\infty, \infty)$

Asymptote: $x = -3$

CP
~~Intercept~~: $(-2, 0)$

shift left 3

3. $f(x) = \log_2 (x-3)+1$



Domain: $(3, \infty)$

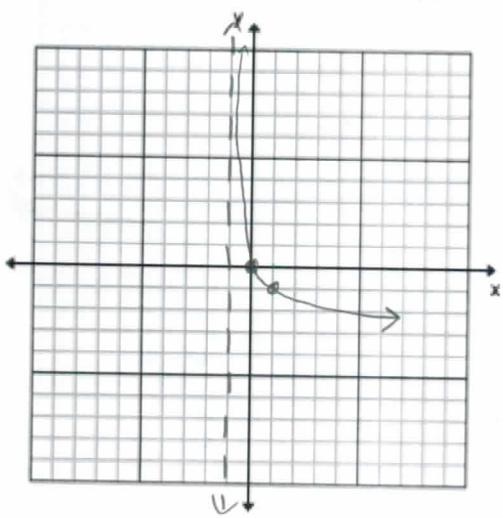
Range: $(-\infty, \infty)$

Asymptote: $x = 3$

CP
~~Intercept~~: $(4, 1)$

right 3, up 1

4. $f(x) = -\log_3 (x+1)$



Domain: $(-1, \infty)$

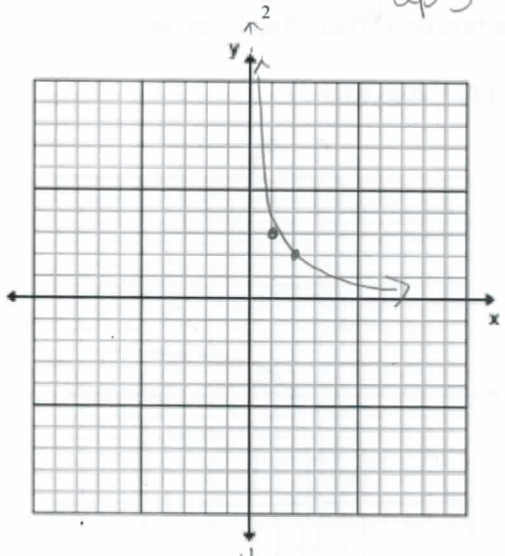
Range: $(-\infty, \infty)$

Asymptote: $x = -1$

CP
~~Intercept~~: $(0, 0)$

left 1
reflect over x-axis

5. $f(x) = \log_{\frac{1}{2}} x + 3$ up 3



Domain: $(0, \infty)$

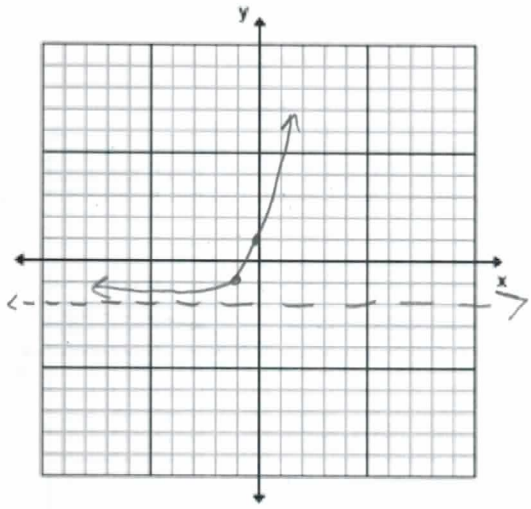
Range: $(-\infty, \infty)$

Asymptote: $X = 0$

CP

~~Intercept~~: $(1, 3)$

6. $f(x) = 3^{x+1} - 2$ left 1, down 2



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

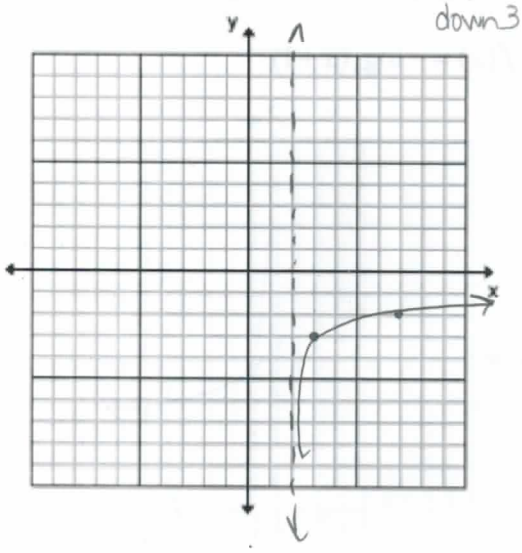
Range: $(-2, \infty)$

Asymptote: $y = -2$

CP

~~Intercept~~: $(-1, -1)$

7. $y = \log_5 (x-2) - 3$ right 2 down 3



Domain: $(2, \infty)$

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

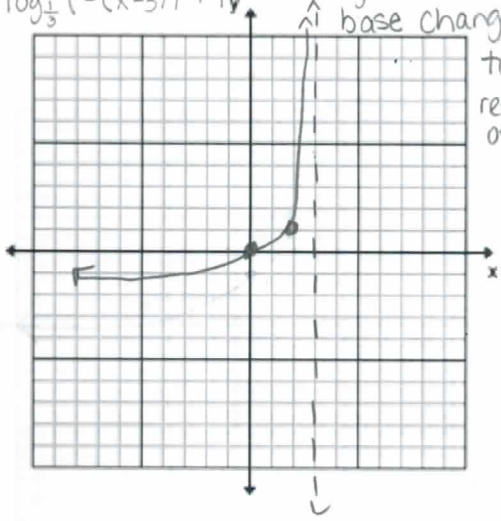
Asymptote: $X = 2$

CP

~~Intercept~~: $(3, -3)$

8. $y = \log_{\frac{1}{3}} (3-x) + 1$

$= \log_{\frac{1}{3}} (-(x-3)) + 1$ up 1 reflect over y right 3 base changes to reflect over x



Domain: $(-\infty, 3)$

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

Asymptote: $X = 3$

CP

~~Intercept~~: $(2, 1)$