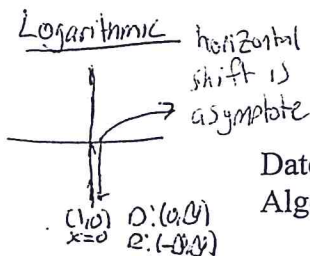
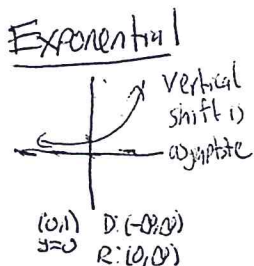


Name Schlansky
Mr. Schlansky



Date _____
Algebra II

Sketching Exponential and Logarithmic Functions

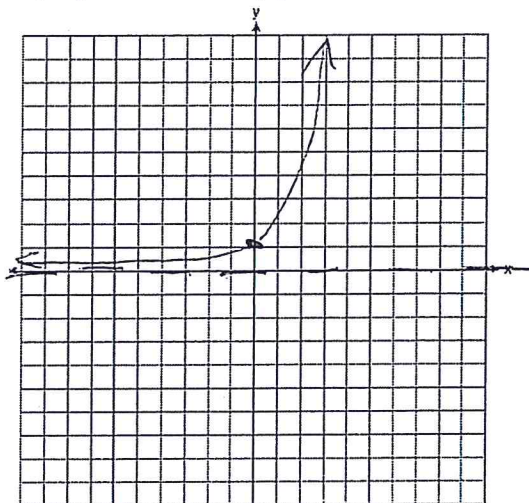
For the following equations, sketch the equation using the asymptote and 1 key point, state the domain and range, state the equation of the asymptote.

1. $y = 2^x$

Domain: $(-\infty, \infty)$ Key point: (0,1)

Range: $(0, \infty)$

Asymptote: $y=0$



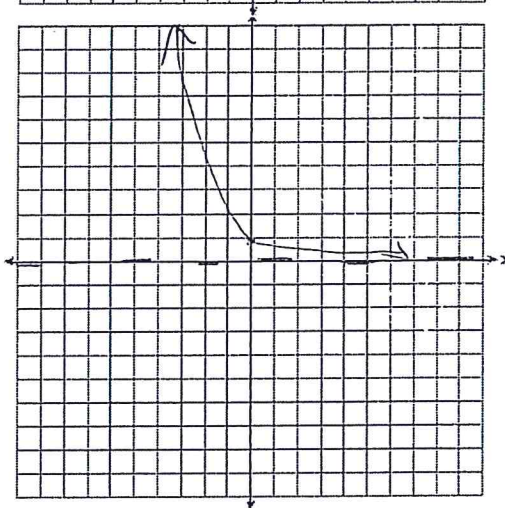
2. $y = \left(\frac{1}{2}\right)^x$ → decay < 1

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

Range: $(0, \infty)$

Asymptote: $y=0$

Key Point: (0,1)



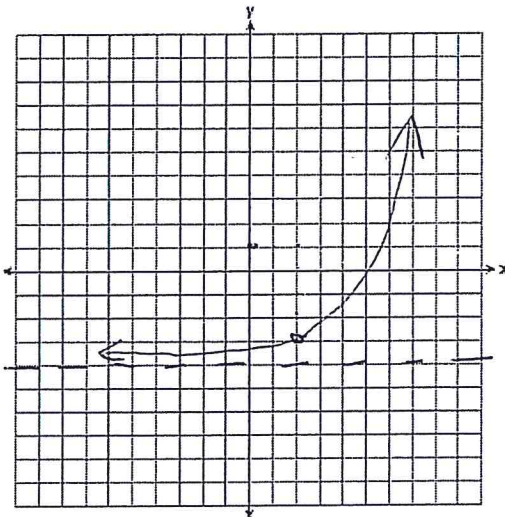
3. $y = 3^{x-2} - 4$ → right 2
→ down 4

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

Range: $(-4, \infty)$

Asymptote: $y = -4$

Key Point: (2, -3)



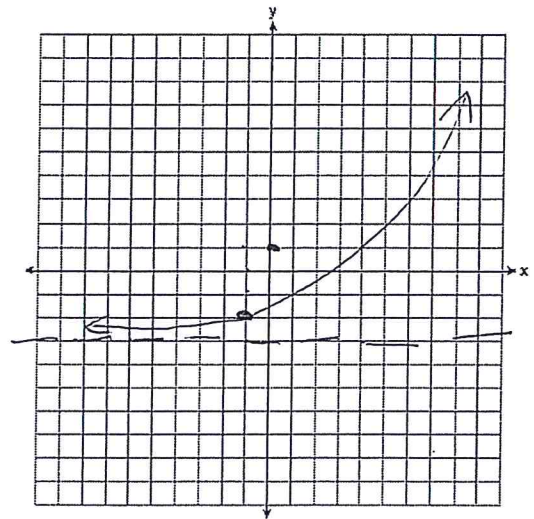
4. $y = 2^{x+1} - 3$.
 ↑ left 1
 ↓ down 3

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

range: $(-3, \infty)$

asymptote: $y = -3$

key point: $(-1, -2)$



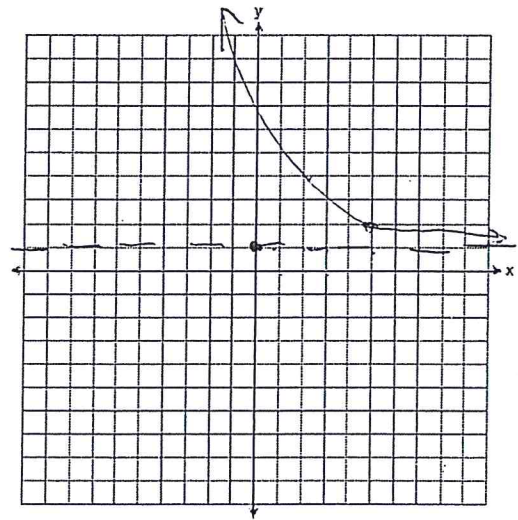
5. $y = \left(\frac{1}{3}\right)^{x-5} + 1$
 ↓ decay
 → right 5
 ↑ up 1

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

range: $(1, \infty)$

asymptote: $y = 1$

key point: $(5, 2)$



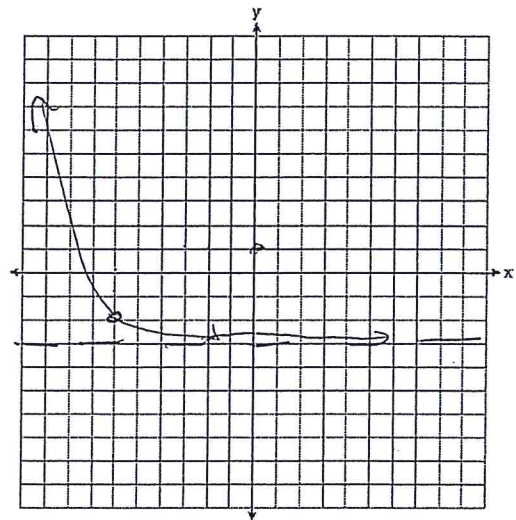
6. $y = \left(\frac{1}{2}\right)^{x+6} - 3$
 ↓ decay
 ← left 6
 ↓ down 3

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

range: $(-3, \infty)$

asymptote: $y = -3$

key point: $(-6, -2)$



7. $y = \log_2 x$

domain: $(0, \infty)$

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

asymptote: $x = 0$

key point: $(1, 0)$

8. $y = \log_3(x+2)$

→ left 2

domain: $(-2, \infty)$

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

asymptote: $x = -2$

key point: $(-1, 0)$

9. $y = \log_4(x) + 2$

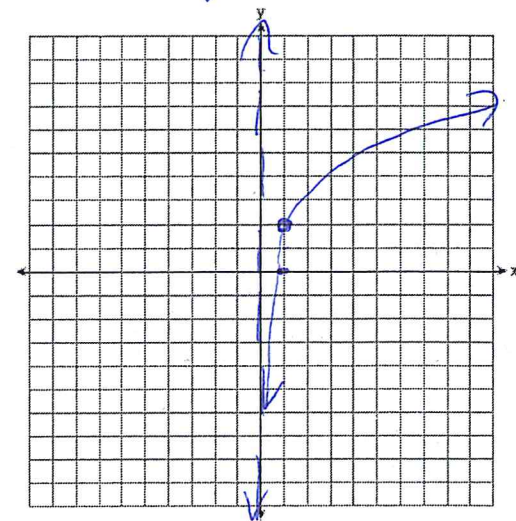
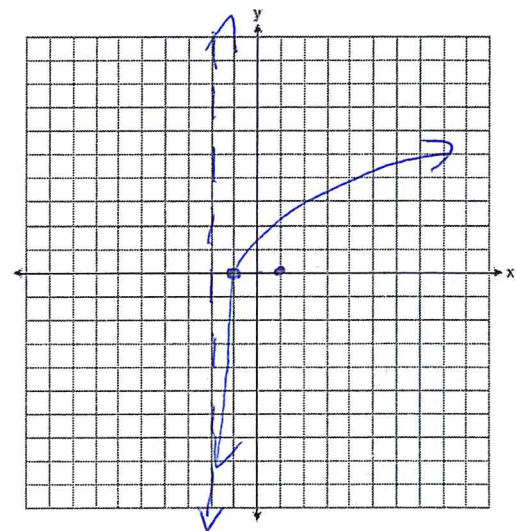
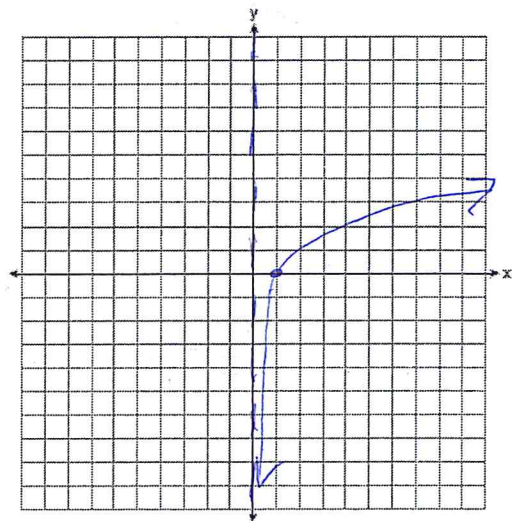
→ up 2 (does not affect asymptote)

domain: $(0, \infty)$

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

asymptote: $x = 0$

key point: $(1, 2)$



10. $y = \log_3(x+8)$

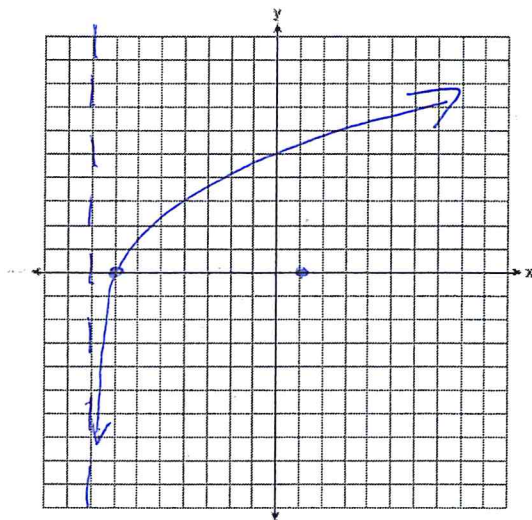
→ left 8

domain: $(-8, \infty)$

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

asymptote: $x = -8$

Key point: $(-7, 0)$



11. $y = \log_4(x) - 8$

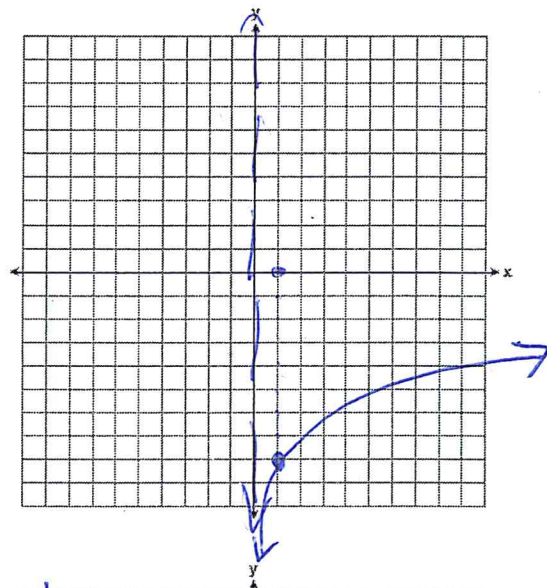
→ down 8

domain: $(0, \infty)$

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

asymptote: $x = 0$

Key point: $(1, -8)$



12. $y = \log_2(x+9) - 3$

→ left 9
→ down 3

domain: $(-9, \infty)$

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

asymptote: $x = -9$

Key point: $(-8, -3)$

