Name _____   Date _____
Mr. Schlansky   Algebra II

Graphing Exponential and Logarithmic Functions

For the following equations, graph the equation and the asymptote. State the domain, range, equation of the asymptote, and end behavior.
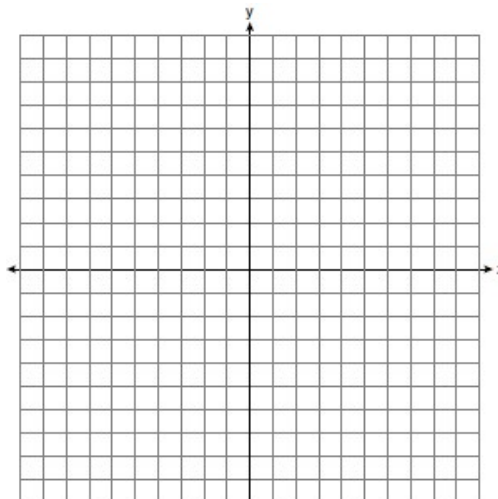
1. $y = 2^x - 3$

Domain:

Range:

Asymptote:

End Behavior:
$x \rightarrow -\infty, \; f(x) \rightarrow$
$x \rightarrow \infty, \; f(x) \rightarrow$

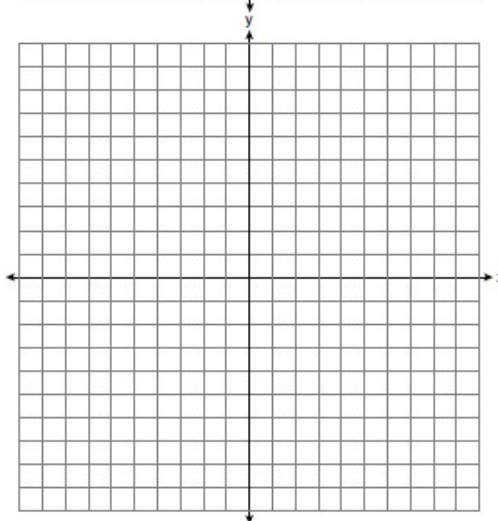2. $y = \dfrac{1}{2}^{x-3} + 1$

Domain:

Range:

Asymptote:

End Behavior:
$x \rightarrow -\infty, \; f(x) \rightarrow$
$x \rightarrow \infty, \; f(x) \rightarrow$
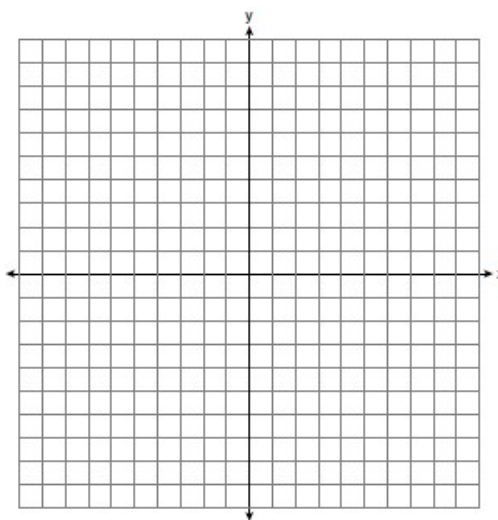
3. $y = -3^{x-2} + 4$

Domain:

Range:

Asymptote:

End Behavior:
$x \rightarrow -\infty, \; f(x) \rightarrow$
$x \rightarrow \infty, \; f(x) \rightarrow$
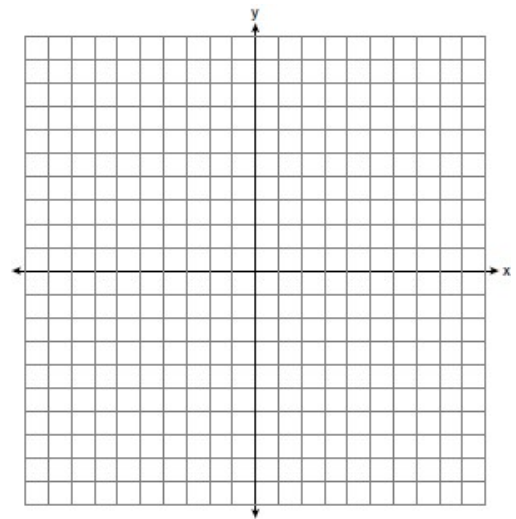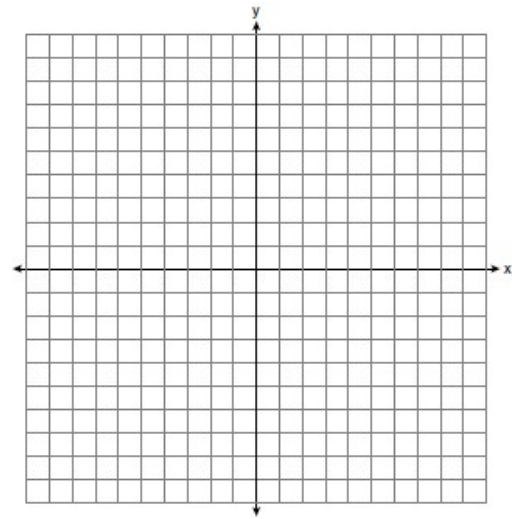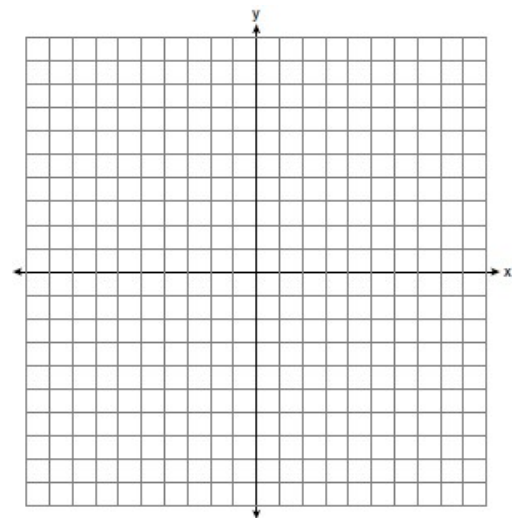
28

4. $y = 2(3)^{x+1} - 8$
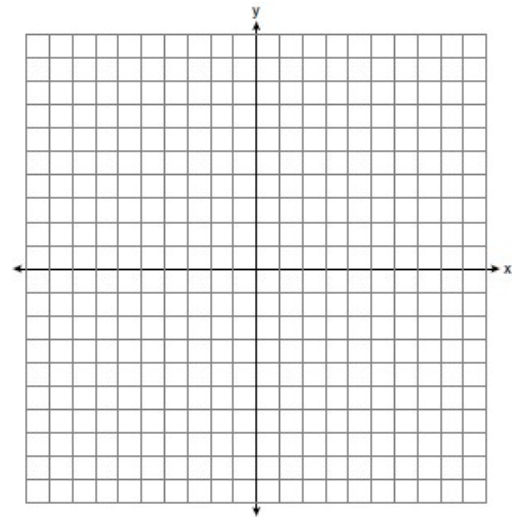
Domain:

Range:

Asymptote:

End Behavior:
$x \to -\infty, \ f(x) \to$
$x \to \infty, \ f(x) \to$

5. $y = -2\left(\dfrac{1}{3}\right)^{x-5} + 9$

Domain:

Range:

Asymptote:

End Behavior:
$x \to -\infty, \ f(x) \to$
$x \to \infty, \ f(x) \to$

6. $y = 3\left(\dfrac{1}{2}\right)^{x+1} - 7$

Domain:

Range:

Asymptote:

End Behavior:
$x \to -\infty, \ f(x) \to$
$x \to \infty, \ f(x) \to$

29

7. $y = \log_2(x) + 3$

Domain:

Range:

Asymptote:

End Behavior:
$x \to 0,\ f(x) \to$
$x \to \infty,\ f(x) \to$

8. $y = \log_3(x+2) - 1$

Domain:
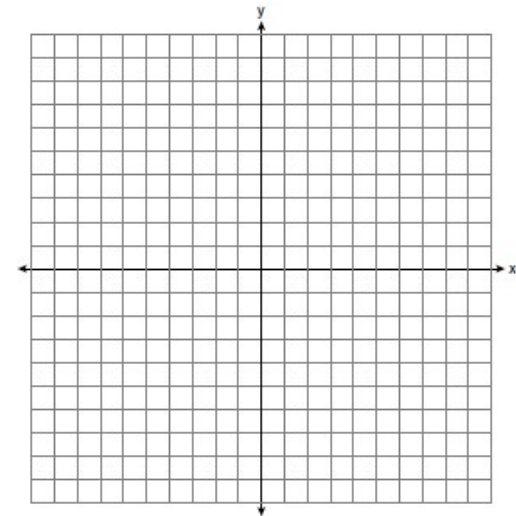
Range:

Asymptote:

End Behavior:
$x \to -2,\ f(x) \to$
$x \to \infty,\ f(x) \to$

9. $y = -2\log_2(x+6) - 4$

Domain:
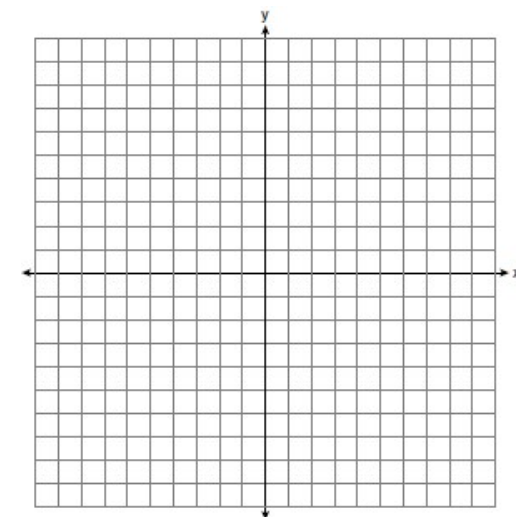
Range:

Asymptote:

End Behavior:
$x \to -6,\ f(x) \to$
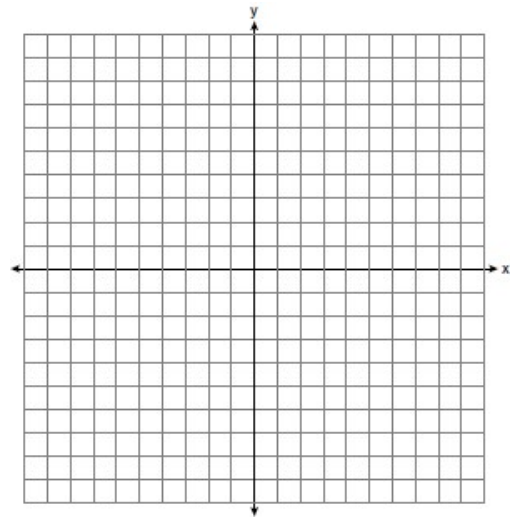$x \to \infty,\ f(x) \to$

10. $y = 4\log_{\frac{1}{2}}(x-3)+1$

Domain:

Range:

Asymptote:

End Behavior:

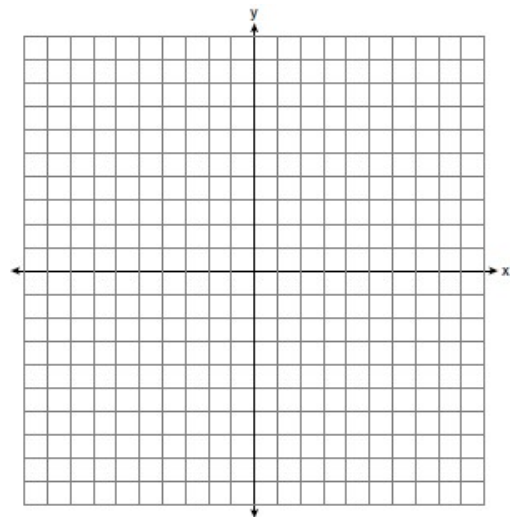$x \to 3,\ f(x) \to$

$x \to \infty,\ f(x) \to$

11. $y = 3\log_4(x+1)-8$

Domain:

Range:

Asymptote:

End Behavior:

$x \to -1,\ f(x) \to$

$x \to \infty,\ f(x) \to$

12. $y = -4\log_2(x+9)+4$

Domain:

Range:

Asymptote:

End Behavior:

$x \to -9,\ f(x) \to$

$x \to \infty,\ f(x) \to$