

Accelerated Geom/Alg 2
Exponentials and Logarithms Review Sheet

Name: _____

Date: _____ Block: _____

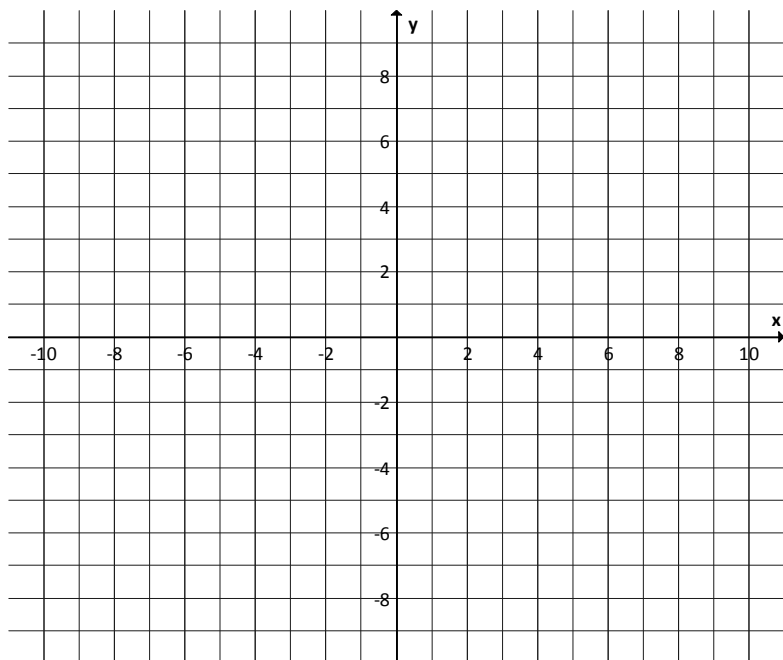
Graph the following functions:

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

Parent:

Transformation:

x	y



Domain: _____ Range: _____ Asymptote: _____

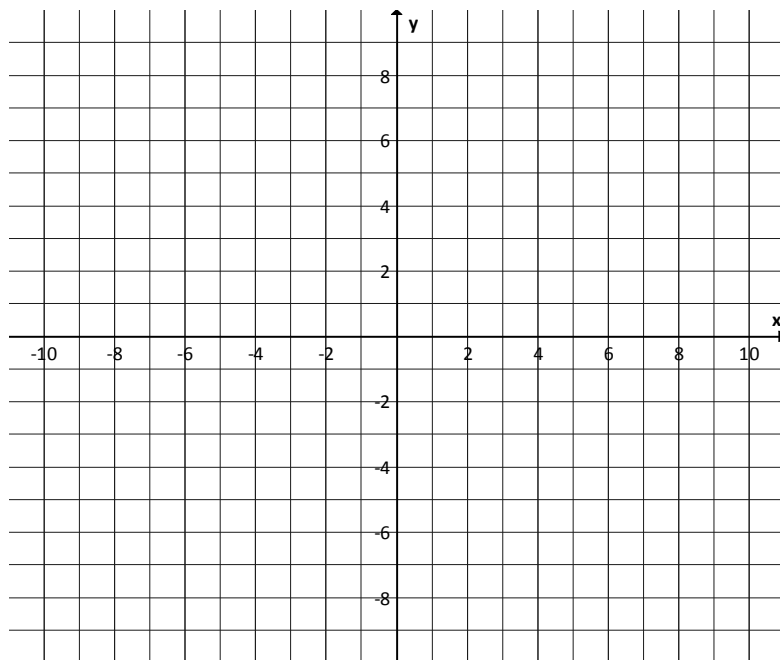
End Behavior: $x \rightarrow -2, f(x) \rightarrow$ _____ $x \rightarrow \infty, f(x) \rightarrow$ _____

2. $y = 3 \log_{\frac{1}{2}} x - 5$

Parent:

Transformation:

x	y



Domain: _____ Range: _____ Asymptote: _____

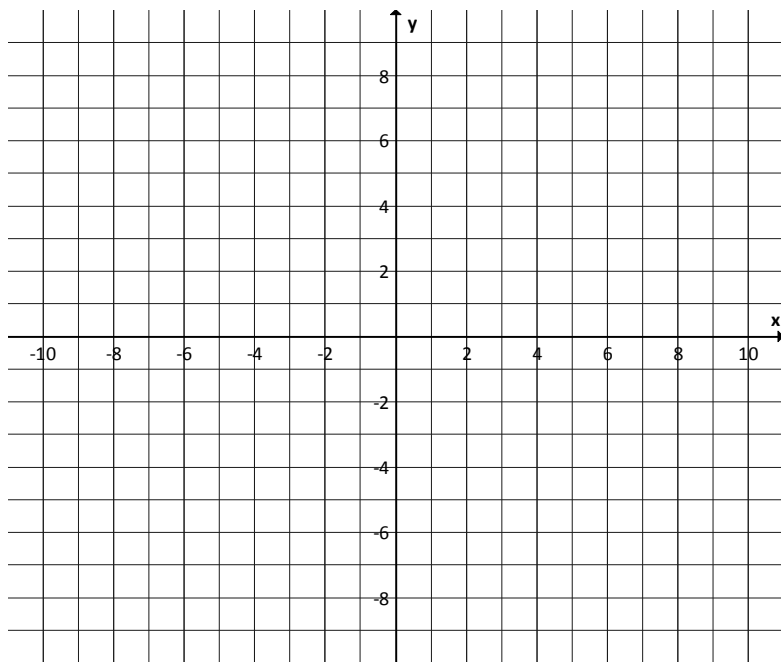
End Behavior: $x \rightarrow 0, f(x) \rightarrow$ _____ $x \rightarrow \infty, f(x) \rightarrow$ _____

3. $y = -2\log_4(x-5)+1$

Parent:

Transformation:

x	y



Domain: _____ Range: _____ Asymptote: _____

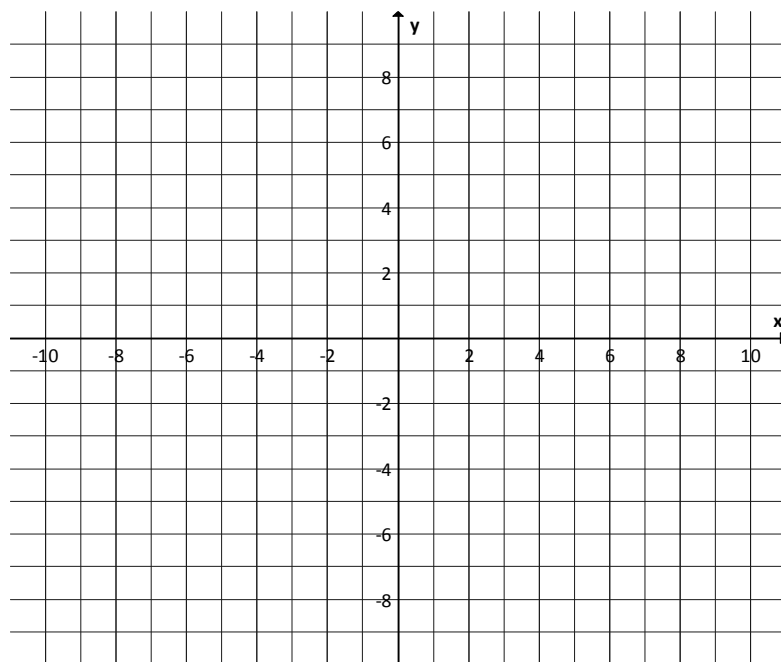
End Behavior: $x \rightarrow 5, f(x) \rightarrow$ _____ $x \rightarrow \infty, f(x) \rightarrow$ _____

4. $f(x) = -3 * 2^{x-4} + 7$

Parent:

Transformation:

x	y



Domain: _____ Range: _____ Asymptote: _____

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

5. Condense each expression

a) $\ln x - \frac{1}{3} \ln y$

b) $4\log_5 x + \log_5 y$

c) $3\log_4 4 - 6\log_4 y$

d) $\log_4 8 + \log_4 x - 2\log_4 y$

e) $(5\log 2 + 3\log a) - (2\log 4 + 5\log b)$

6. Expand each expression

a) $\log_2 (x^2 y)^3$

b) $\log \left(\frac{x}{y^6} \right)^5$

c) $\log_3 (xyz^2)$

d) $\log_8 \left(\frac{xy}{6} \right)$

e) $\log_4 \frac{16x^3 y^2}{z^4}$

f) $\log_2 \sqrt[2]{25x}$

7. Solve each equation. Check for extraneous solutions and round to the nearest thousandth (3rd decimal place).

a) $\log x - \log 3 = 2$

b) $3 \cdot e^{5-x} + 2 = 20$

c.) $\log_3 (x+5) - \log_3 4 = 1$

d.) $3^{x+7} - 2 = 79$

e.) $\log_4 (x+1) + \log_4 (x-10) = \log_4 80$

f) $\log_7 (-2x) + \log_7 5 = 1$

g) $\log_5 x - \log_5 (x+6) = \log_5 39$

h) $\log x + \log (x+3) = 1$

i) $\log_5 (x^2 - 5) - \log_5 4 = 1$

j) $-9\log_9 (x+6) = -27$

k) $-10 + \log_7 (x-7) = -12$

l) $-2(4^{2x-1}) + 5 = -17$

m) $3e^{x-7} = 18$

n) $64^{3x-1} = 16^{4+x}$

8. Consider the bacteria that doubles every four hours, $f(x) = 25(2)^{x/4}$. Rewrite the function using the properties of exponents, so that the exponent is an integer. What is the rate/percent of growth of the bacteria each hour?

9. If there are originally 40 bacteria and they double each hour, how long will it take for the population to reach 640 bacteria? Solve the problem algebraically.

10. Simplify $16384^{4/7}$ (show the steps to simplify!)

11. Simplify $216^{-2/3}$ (show the steps to simplify!)

12. Solve $(2x + 5)^{\frac{4}{3}} = 2401$

13. Solve $(\sqrt[3]{x - 6})^5 = 59049$