

THE FOLLOWING WILL BE NON-CALCULATOR

1) Change the following to either exponential or logarithmic form.

a) $\log_3 243 = 5$

b) $7^2 = 49$

2) Evaluate the following.

a) $\log_5 \frac{1}{25} =$

b) $\log_4 4 =$

c) $\log_{36} 6 =$

d) $\log_3 27 =$

Graph each of the following functions with **at least two points and the asymptote** and fill in the indicated information.

3) $y = \log_2 x$

Transformations: _____

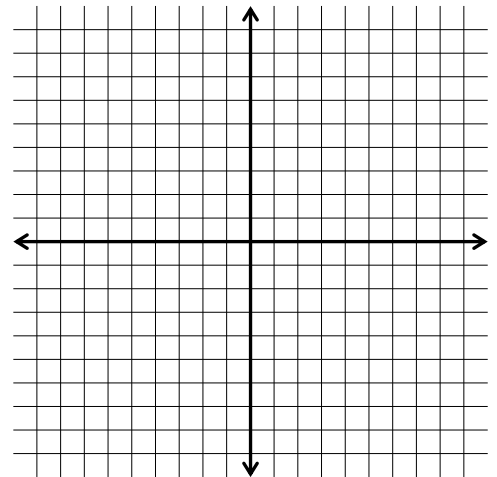
Asymptote: _____

Domain: _____

Range: _____

x-intercept: _____

y-intercept: _____



4) $y = \log_4(x + 2) - 1$

Transformations: _____

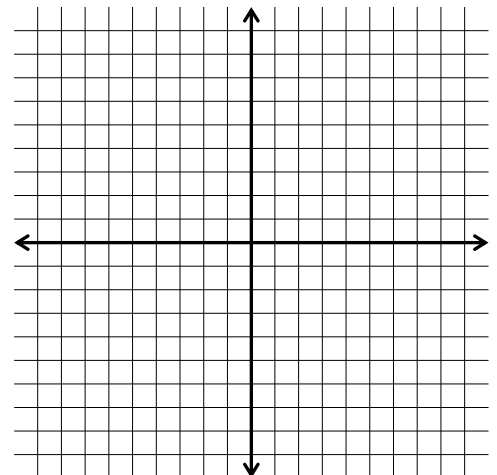
Asymptote: _____

Domain: _____

Range: _____

x-intercept: _____

y-intercept: _____



5) $y = (3)^x$

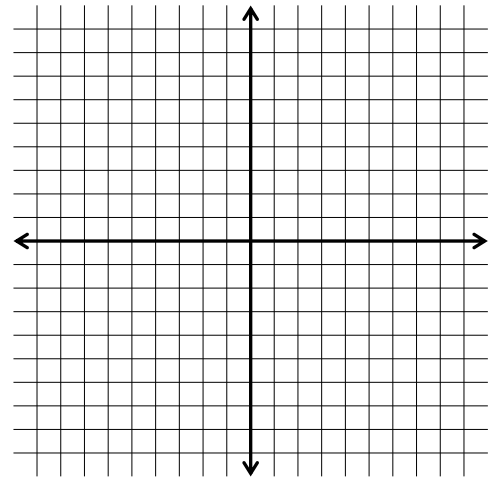
Describe the shift: _____

Asymptote: _____

Domain: _____ Range: _____

x-intercept: _____ y-intercept: _____

Growth or Decay?



6) $y = (2)^{x-1} + 3$

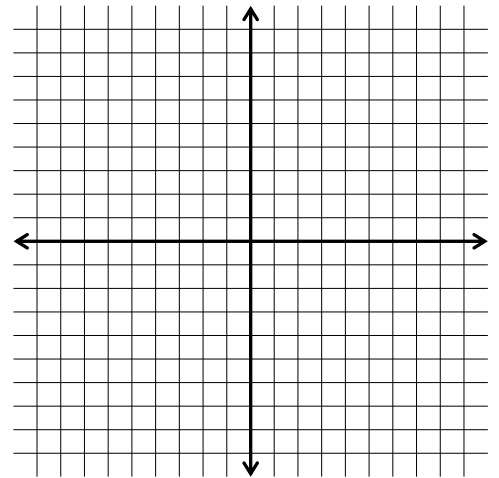
Describe the shift: _____

Asymptote: _____

Domain: _____ Range: _____

x-intercept: _____ y-intercept: _____

Growth or Decay?



7) $y = \left(\frac{1}{2}\right)^{x+3}$

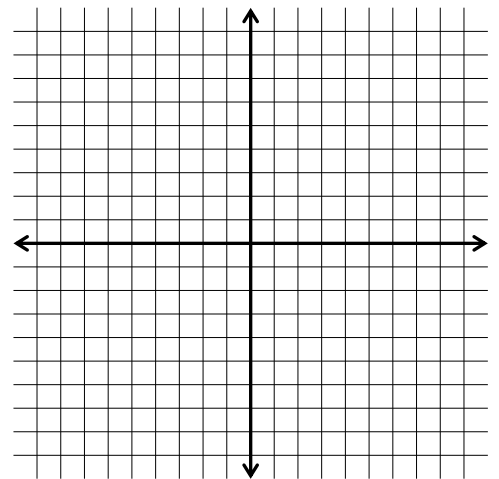
Describe the shift: _____

Asymptote: _____

Domain: _____ Range: _____

x-intercept: _____ y-intercept: _____

Growth or Decay?



THE FOLLOWING WILL BE CALCULATOR

$$y = a(1 + r)^t$$

$$y = a(1 - r)^t$$

$$A = P \left(1 + \frac{r}{n}\right)^{nt}$$

$$A = Pe^{rt}$$

8.) Hillside secondary school had an enrollment of 1,400 in 2001. The enrollment is expected to increase at a rate of 4% per year.

a. Write an exponential function to model the situation.

b. Calculate the estimated school enrollment in 2006.

9.) In the year 2004 it was estimated that the Amazon rain forest was home to 60,000 poison arrow frogs. Due to loss of habitat the number of frogs is falling at a rate of 15% per year.



a. Write an exponential function to model the situation.

b. Calculate the estimated number of frogs for 2008.

10.) Suppose your goal is to have at least \$3,000 in a bank account after 5 years. Which account will allow you to reach your goal if you have \$2,500 to deposit? Identify all accounts that qualify.

Bank	Interest Rate	Compounding
X	3.5%	Monthly
Y	4.0%	Yearly
Z	4.7%	Quarterly

11.) You deposit \$600 in an account that pays 1% annual interest compounded continuously, find the balance for 5 years.

12.) You started working at a new company in 2010 and the company raises your salary each year. Your salary S (in thousands of dollars) can be modeled by $S = 38(1.04)^t$ where t is the number of years since you started working.

a. What can you expect your salary to be in 2015?

b. What is your initial salary? What is the growth rate for your salary?

Solve for x in each of the following.

13.) $6^3 = 6^{2x+5}$

14.) $10^{4x-5} + 11 = 20$

15.) $\log_5(3x + 5) = \log_5(x - 9)$

16.) $\log_5(4x + 25) + 7 = 10$