Name: _____

Date: _____   Hour: ____

Exponential Functions

1. Write a function that triples, starting at ½ .

2. Write a function that is reduced by a third, starting at 2.

3. Write a function that quadruples and starts at 3 then has a vertical shift down 6 units

4. You put $125 in a savings account that earns 3% annual interest compounded yearly. You do not make any other deposits of withdrawals. How much will your investment be worth in 5 years?

5. You bought a use Jeep Cherokee for $7,250. The car depreciates 11% every year.
   a. Write an equation to model this depreciation.

   b. What will the car's value be in 4 years?

6. Jonathan has a bacterial infection. The doctor measured 1000 bacteria cells. After seeing his pediatrician, he was given an antibiotic that eliminates approximately ¼ of the bacteria cells each day.
   a. Describe the rate of change (growth or decay)
   b. Write the equation to model the amount of bacteria cells over time, x.

7. You should review the Babysitter Task. Compare the Radical Family's pay vs. the Pi Family's pay.
8. What is the difference between a linear and exponential function? How can you tell?

Linear	Exponential

9. Describe the similarities and differences of the 2 functions:
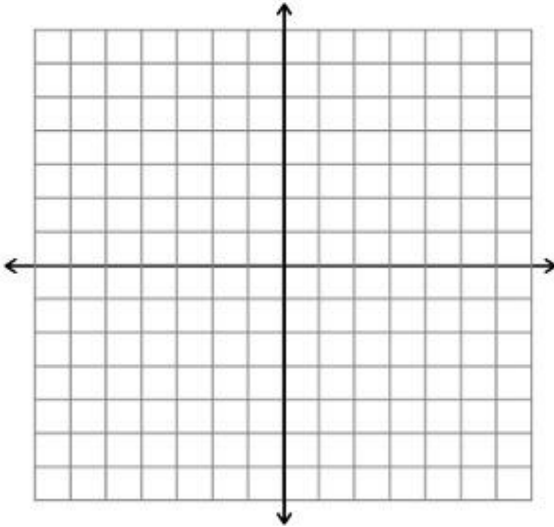   a. $f(x) = 6(2)^x$
   b. $g(x) = 6\left(\frac{1}{2}\right)^x$

10. What is the y intercept of the following functions?
   a. $y = 12(3)^x$
   b. $y = \left(\frac{1}{3}\right)^x$

11. Graph an exponential function that shows exponential decay and a y-intercept of 5.

   a.

12. What is the function that has a y intercept of 0, grows by tripling and has a vertical shift up 4 unit?

   a. Equation: _____

   b. Graph that function