PAP Algebra 2 **Name: _____**

Exponential Applications Intro. HW

For the given equation find the initial value, identify if it a growth or decay, and the rate of growth/decay.

1. $y = 2(3)^x$

Initial:

Growth or Decay:

Rage of g/d:

2. $y = 1.5^x$

Initial:

Growth or Decay:

Rage of g/d:

3. $y = 4(1.05)^x$

Initial:

Growth or Decay:

Rage of g/d:

4. $y = .87^x$

Initial:

Growth or Decay:

Rage of g/d:

5. $y = 4(.32)^x$

Initial:

Growth or Decay:

Rage of g/d:

6. $y = 2.3(1.27)^x$

Initial:

Growth or Decay:

Rage of g/d:

Solve the following.

7. The number of guppies in the Liberty High fish tank starts at 2 and increases 30% per week.

a) Write an equation to represent this situation

b) How many guppies in 6 weeks?

c) When will the guppies outnumber the population of Frisco? (72,000)

8. Chuck Norris has figured out a way to clone himself. He is able to triple the number of Chuck Norrises every 3 days through cloning.

a) What is the percent of growth?

b) Write an equation to model this situation.

c) How many Chuck Norrises will there be in 21 days?

9. The number of cell phones in use in the United States t years after 1995 can be approximated by $N(t) = 0.4(1.63)^t$ where N(t) is the number of cell phones in use, in millions.

a) Determine in what year 150 million cell phones will be in use.

b) In what year will the number of cell phones be double that of 1995?

10. An isotope of cesium has a half-life of 30 years. If 10 mg. of cesium disintegrates over a period of 90 years, how many mg. of cesium would remain?

11. The half-life of thorium is 25 days. If you start with 70 grams of thorium, how much is left after 100 days?

12. Coach Byrd decides to spend his lucrative coaching stipend on a classic Mustang. He buys it for $47,321.53. Being a classic, it appreciates in value by 18% per year.

a) Write an equation to model this situation.

b) How much will her Mustang be worth after 10 years?

c) When will her Mustang be worth $100,000?

13. Mr. Loney has saved every cent of his salary for the last several years. He can now afford to buy a brand-new Kia Rio for $6,200. Unfortunately, the Kia depreciates at a rate of 42% per year.

a. Write an equation to model this situation.

b. How much will Mr. Loney's Kia be worth after 2 years?

c. When will his Kia Rio be worth $250?

14. The number of coyotes in Frisco has been decreasing according to the following table:

Year	0	1	2	3
Coyotes	27,000	9,000	3,000	1,000

a. Is this situation growth or decay?

b. What is the rate of growth/decay?

c. What equation would model this situation?

d. How many coyotes would you expect in year 10?