

Name \_\_\_\_\_

## Exponential Growth and Decay Problems

Answer the following questions. If necessary, please round answers to the nearest whole number.

1. A dish has 212 bacteria in it. The population of bacteria will grow by 80% every 2 days. How many bacteria will be present in . . .

- a) 4 days
- b) 8 days
- c) 11 days

2. The house down the street has termites in the porch. The exterminator estimated that there are about 800,000 termites eating at the porch. He said that the treatment he put on the wood would kill 40% of the termites every day. How many termites will be eating at the porch in . . .

- a) 3 days
- b) 36 hours
- c) 2 weeks

3. In June, a 5<sup>th</sup> grade class started out with 10 mealworms for an experiment. The population of worms will double (grow by 100%) every month. How many mealworms will the class have for their experiment in . . .

- a) 3 months

b) 1 year

c) 45 days

4. Your baby brother has an ear infection. The doctor said there are probably 50,000,000 bacteria in his left ear. The penicillin the doctor prescribed will kill 7% of the bacteria every 6 hours. How many bacteria will be in your brother's ear in . . .

a) 1 day

b) 5 days

c) 1 week

d) 3 hours

5. The population of Succasunna, NJ was 11,171 in 2000. The estimated population growth is 2.1% every 4 years. What is the estimated population in the year . . .

a) 2020

b) 2001

c) this year

d) at the beginning of the next century

6. This year an estimated 4,324,000 people in this country are illiterate. With new incentives and funding, the country is hoping to cut that number by 11% every 3 years. How many people do you predict will be illiterate in the year . . .

a) 2035?

b) 2095?

c) 2155?

7. In Sub-Saharan Africa an estimated 28.5 million people are infected with AIDS. Unfortunately that number is rising, and it is estimated to grow at a rate of .4% every 2 years. How many people will be infected in . . .

a) 3 years

b) 10 years

c) 1000 years

8. Over the last several years there has been an increase in the amount of school age children carrying cell phones. Current estimates are that there are 1,237,000 students in the US with cell phones. The trend is likely to continue, with the amount of children with phones tripling every 10 years. At that rate, how many students will have cell phones in . . .

a) 2015

b) 2100

c) two years

9. Coal was once a booming industry in central Pennsylvania. However, the industry has begun to decline. In the year 1950 about 600,000 were employed in the local coalmines. Since then the number of coalminers has declined by 5% every 6 years. How many coal workers were/will be employed in the year . . .

a) 1962

b) 2010

c) 1971

10. Write and solve your own exponential growth problem.

11. Write and solve your own exponential decay problem.