Writing Exponential Equations

Name_____ **Class Period**_____

Write an equation for each problem to help you answer the question.

1. A bacteria population doubles every hour. The Petri dish starts with 10 bacteria, how many bacteria will there be in 48 hours?

2. The NCAA Division I tournament begins each year with 64 teams. After each round a team is eliminated, reducing the number of teams by half. How many teams are left after 3 rounds?

3. A type of insect doubles every 12 hours. The population starts with 16 insects. How many insects will you have in 3 days?

4. The half-life of a radioactive substance is the time it takes for half of the substance to decay. The half-life of one form of rhodium, Rh-106, is about 30 seconds. If you start with 100 grams of Rh-106, how much will be left after 5 minutes?

5. If you end with 1920 bacteria in a petri dish and the population doubled every hour, how many bacteria did you start with 6 hours ago?

6. An investment doubles in value every 9 years. What was the starting value of the investment if it is worth $4,800 after 27 years?

7. The house down the street has a termite problem. The exterminator estimates that there are about 800,000 termites. The pesticide they use to kill the termites kills about half the termites each day. How many termites are left after:

    a. 2 days

    b. 3 weeks

8. A 5th grade class is raising meal worms for an experiment. They start with 10 meal worms. The population triples every 8 hours. How many meal worms does the class have after 72 hours?