Algebra 1   Name _____

HW #5 **Exponential Growth and Decay**

1. The population of Brazil was about 162,661,000 in 1996 and was project to grow at a rate of 7.7% per decade. Predict the population, to the nearest hundred thousand, of Brazil for 2016 and 2020.

2. A vitamin is eliminated from the bloodstream at a rate of 20% per hour. The vitamin reaches a peak level in the bloodstream of 300 milligrams. Predict the amount, to the nearest tenth of a milligram, of the vitamin remaining 2 hours and 7 hours after the peak level.

3. Suppose that you put $2500 into a retirement account that grows with an interest rate of 5.25% each year. Find the balance in the account after 5 years, 10 years, and 15 years.

4. The first stage of the *Saturn 5* rocket that propelled astronauts to the moon burned about 8% of its fuel every 15 seconds and carried about 600,000 gallons of fuel at liftoff. Estimate the amount of fuel remaining, to the nearest ten thousand gallons, in the first stage 1 minute, 1.5 minutes, and 2 minutes after takeoff.

5. Each year the local country club sponsors a tennis tournament. Play starts with 128 participants. During each round, half of the players are eliminated. How many players remain after 5 rounds?

6. You have inherited land that was purchased for $30,000 in 1960. The value of the land increased by approximately 5% per year. What is the approximate value of the land in the year 2011?