1=ah

Exponential Growth/Decay Applications

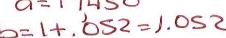
Homework

Name Date

Write an equation for each of the following problems and solve.

1. A town's population grows at a rate of 5.2% per year. If the town currently has 17,450 people,

how many people will there be in 6 years? 18 years?



now many people will there be in 6 years? 18 years?
$$0 = 17450$$
 $0 = 17450$

y=17450(1.052)

x=6, x=18 y=23653 y=26152. A rabbit population doubles every year. If there are two rabbits to start with, how many rabbits will there be in 5 years?

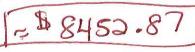
0-2

$$a=2$$

$$x=5$$

3. A car is purchased for \$22,800. The value of the car depreciates 18% per year. What is the y=22,800 (.82)5 = \$ 8452.8 value of the car after 5 years?

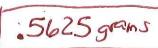
a=22,800



4. The number of people who ride skateboards is growing at a rate of 20% per year. If 400 people ride skateboards now, how many will ride skateboards in 3 years?

7691 people

5. Suppose a radioactive substance loses half of its remaining mass each day. How much of a 36 gram sample will remain after 6 days?



6. Identify each equation as linear, quadratic, exponential, or inverse...

b.
$$y = \frac{8}{x}$$
 inverse

c.
$$y = x^2 - x + 1$$

d.
$$y = -0.25x^2$$
 duadratic

d.
$$y = -0.25x^2$$
 duadratic e. $y = \frac{1}{2}(5)^x$ exponential f. $y = -3(0.5)x$

f.
$$y = -3(0.5)x$$

g.
$$y = 7x + 2$$

i.
$$y = -100(0.25)^{x}$$