Warm Up 4/3/19

1. A geometric sequence is given: -2, 6, -18, 54...

Write the equation to represent this sequence.

$a_n = a_1(r)^{n-1}$

$\boxed{a_n = -2(-3)^{n-1}}$

2. A forest starts with a deer population of 350 deer. The population is decreasing at a rate of 3% per year.

Write the equation to represent the scenario

$y = a(b)^x$

$y = 350(0.97)^x$

How many deer are expected after 6 years?

$y = 350(0.97)^6$

291 deer

Growth/Decay (1FAC±OR) vr. R%TE

$y = 2(0.10)^x$ growth or decay? g/d factor? 0.10 g/d rate? 90%

$y = 3(1.05)^x$ growth or decay? g/d factor? 1.05 g/d rate? 5%

$y = -6(0.70)^x$ growth or decay? g/d factor? 0.70 g/d rate? 30%

$y = -4(1.24)^x$ growth or decay? g/d factor? 1.24 g/d rate? 24%

Every ten years the census counts how many people live in each town in the U.S.

-The 2000 census showed that 2,000 people lived in Mint Hill and 8,000 lived in Matthews.

-The population in Mint Hill is predicted to triple every ten years exp.

-The population in Matthews is predicted to increase by 1,000 people every ten years lin.

What is the first census year that Mint Hill will have a larger population than Matthews?

MH → $y = 2000(3)^x$

M → $y = 1000x + 8000$

year	M.H.	M.
2000	2000	8000
2010	6000	9000
2020	18000	10000
2030	54000	11000
2040	162000	12000