

Playsheet 13

If I've said it once, I've said it a thousand times...

MATH 130-02
Tuesday, March 31, 2009

Directions: Groups should consist of three or four people. Work together on each problem; do not delegate different problems to different people. Submit one **neatly written** write-up per group. Remember to use complete sentences as appropriate and explain your reasoning. That is, **show your work!**

1. Suppose you put \$2000 into a bank account paying 6% interest per year. What is the balance after 1 year? 2 years? 5 years?

2. Consider the rule “multiply the number by itself and subtract 1.” Begin with 0.2.

(a) What is the result of applying the rule once?

(b) Fill out the table below by **iterating** (repeating) this rule.

Iteration	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Result	0.2																

(c) What do you notice?

3. Use the grid paper for this problem. Here are the rules:

(a) A filled-in square is **alive**. An empty square is **dead**.

(b) If a square is alive, it will remain alive in the next generation if exactly two or three of the eight squares surrounding it are alive. Otherwise, it will die.

(c) If a square is dead, it will come to life if exactly three of the eight squares surrounding it are alive. Otherwise, it will remain dead.

On your graph paper, move down the sheet to draw the next generations of the populations given. Draw four generations for each starting population.

4. In **pencil**, draw a large-ish equilateral triangle in the space below. Then erase the middle third of each side and erect an equilateral triangle on the missing piece on each side, creating a star-shaped figure. Repeat this process until the sides become too small to work with. (The process: erase the middle third of each side and erect an equilateral triangle on that missing piece.) This is called the **Koch Snowflake Curve**.

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