

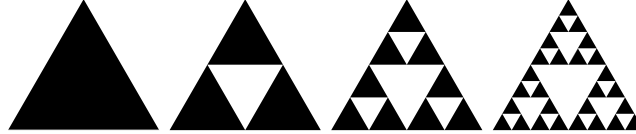
Math 123-02  
Fall 2024  
Dr. Lily Yen

# Assignment 1

Show all your work

Name: \_\_\_\_\_  
Number: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Score: \_\_\_\_/10

**Problem 1:** Sierpinski triangle is a fractal: first take an equilateral triangle (stage 0), then draw a middle triangle (stage 1). Below shows the first three stages.



Count the number of *white* triangles (of all sizes) for each stage, and predict according to your pattern the number of *white* triangles of all sizes in the fourth stage.

Score: /4

**Problem 2:** Decide whether each equation is true.

- a.  $12 \times 42 = 21 \times 24$
- b.  $13 \times 62 = 31 \times 26$
- c.  $23 \times 96 = 32 \times 69$

Explain if this allows you to conclude that  $37 \times 54 = 73 \times 45$ ?

Score: /2

**Problem 3:** Video game designers seem to have a shorter lifespan than the average Japanese or North Americans. The total life span of Laralyn McWilliams, Yoshitaka Murayama, and Mutsumi Inomata is 176. If Laralyn lived 3 years longer than Yoshitaka, but Laralyn lived 5 years shorter than Mutsumi, how old was Mutsumi Inomata when they died?

Score: /4

/10