No Content Mastery Quiz today!

Grab a SM3 book from your table and tear out ALL of chapter 3 (pgs.109-194)

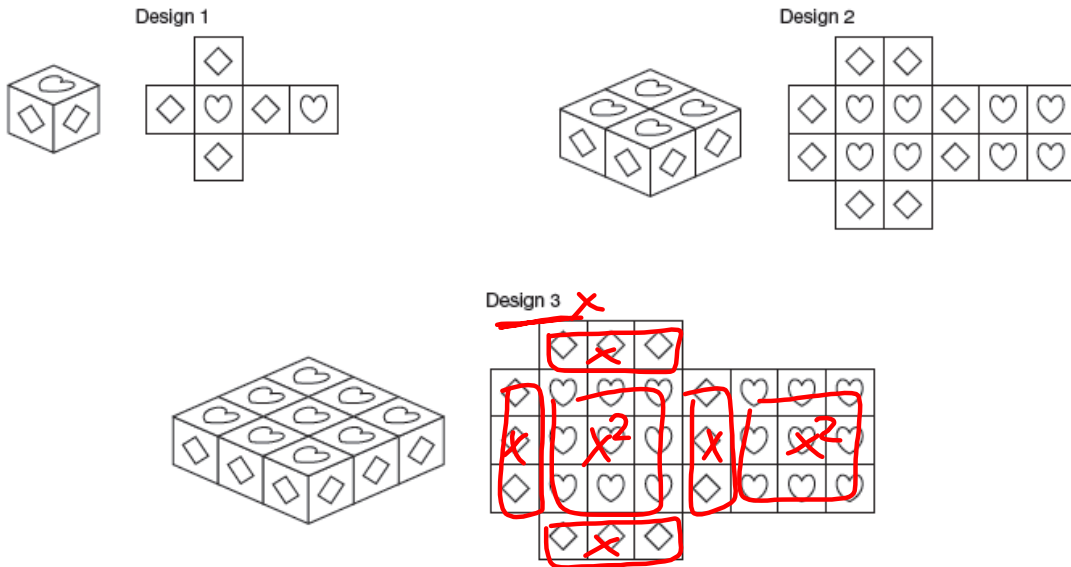# Patterns: They're Grrrrrrowing!
Exploring and Analyzing Patterns

NOT IN YOUR BOOK

3.1

1. A jewelry box company offers simple jewelry boxes with decorative tiles. The top and bottom of each box are adorned with heart tiles while the sides consist of diamond tiles. Pictures of the first 3 jewelry box designs and their corresponding tile layouts are shown.

Design 1

Design 2

Design 3

a. Sketch the tile layout for Design 4 on the grid provided.

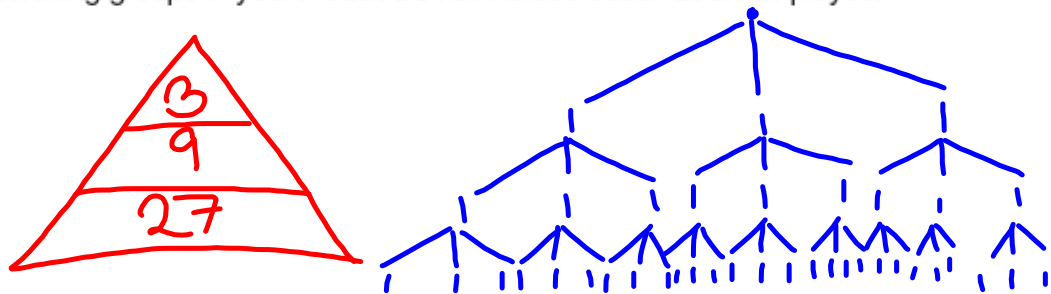| des.	♡	◇
1	2	4
2	8 ⟩6 / 8 ⟩4	
3	8 ⟩10 / 12 ⟩4	
4	32 ⟩14 / 16 ⟩4	
⋮	⋮	⋮
x	$2x^2$	$4x$

b. Analyze the jewelry box designs. Describe as many patterns as you can.

c. Determine a method you can use to calculate the number of diamond tiles, the number of heart tiles, and the total number of tiles used for any design.

Total: $2x^2 + 4x$

d. The company has 4 times as many heart tiles as they have diamond tiles in their inventory. The owner decides to advertise a sale on the box design which uses 4 times as many heart tiles as diamond tiles. Determine which design the owner will have the sale on.

Design 8

Sep 22-8:36 AM

NOT IN YOUR BOOK

2. Susan starts her own telemarketing company by recruiting 3 employees into what she calls Recruiting Group 1. She requires each employee in Recruiting Group 1 to recruit 3 additional employees for Recruiting Group 2. The employees in each successive recruiting group must meet the same requirement of recruiting 3 additional employees.

   a. Create a visual model to represent the number of employees in the company. Only include the first 3 recruiting groups in your model. Do not include Susan as an employee.

   b. Determine a method to calculate the number of employees in any given recruiting group. Use that method to calculate the number of employees hired in each of the first 6 recruiting groups.

group	employees
1	3
2	9
3	27
$\vdots$	$\vdots$
x	3^x

   where $x \geq 0$

   c. Susan can only afford to hire a total of 800 employees. She tells the employees to halt all recruiting as soon as the 800th employee is hired. Which recruiting group will be partially completed at that time? Explain your reasoning.

   Group 6

   $3 + 9 + 27 + 81 + 243 + 729 > 800$

Sep 30-8:39 AM

Homework

Finish lesson 3.1