24. Linear Patterns

Name: _____

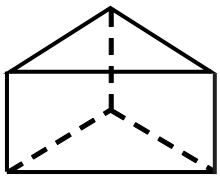
1. A 7-foot tree is planted, which then grows at a rate of 3 feet per year. Complete the table to find the pattern.

years	0	1	2	3	4	10	25	*n*
tree height (feet)	7							

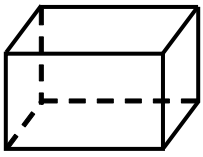
2. A boys and girls club forms a volunteer group to help the community. The group starts with 5 boys and 3 girls. Every week one more boy and two more girls join the group. Complete the table to find the pattern.

week	0	1	2	3	4	5	*n*
ratio of boys to girls	$\frac{5}{3}$	$\frac{6}{5}$					

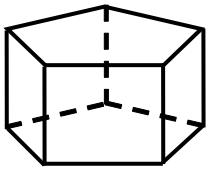
3. Complete the table to find the patterns for prism faces, edges, and vertices.



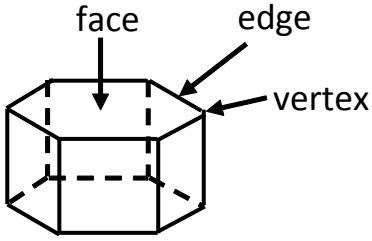
triangular prism



rectangular prism



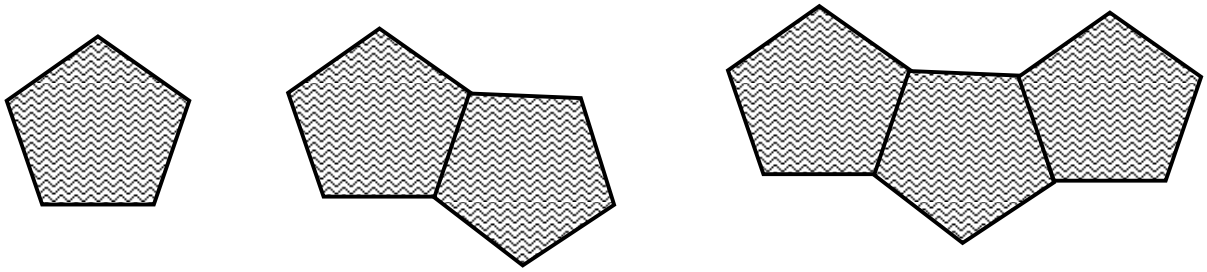
pentagonal prism



hexagonal prism

number of sides in polygon base of prism	3	4	5	6	7	8	15	*n*
number of faces	5							
number of edges			15					
number of vertices		8						

4a. A banquet has pentagonal tables, joined together as shown. There is one seat for each exposed table edge. Complete the table to find the pattern.

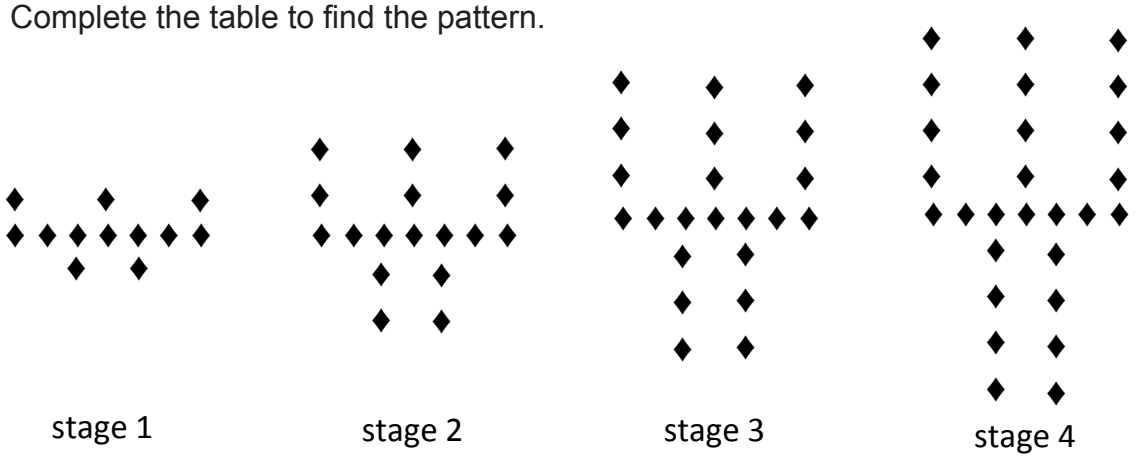


1 table 2 tables 3 tables

number of tables	1	2	3	4	5	10	18	*n*
number of seats	5	8						

b. How many tables will be needed if there must be 152 seats?

5a. Complete the table to find the pattern.



stage 1 stage 2 stage 3 stage 4

stage	1	2	3	4	5	6	10	*n*
number of diamonds	12							

b. At what stage are there 87 diamonds?