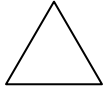


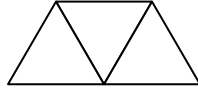
Truss Patterns

Name _____

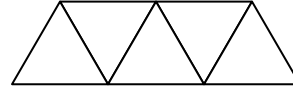
Sometimes used in architectural designs, the figures below are called “*truss patterns*” and are made from steel beams arranged in the form of equilateral triangles. Each line segment represents a steel beam. The LENGTH OF EACH TRUSS IS DETERMINED BY THE NUMBER OF BEAMS ACROSS THE BASE OF THE PATTERN.



Truss of length 1
(uses 3 beams)



Truss of length 2
(uses 7 beams)



Truss of length 3
(uses 11 beams)

A. Complete the table below, recording the number of beams needed for each truss length.

Truss Length	Number of Beams Used
1	
2	
3	
4	
5	
6	

For lengths 2-6, write out the computation, showing how you used the number of beams in the previous step.

- B. Analyze the values in the table above and determine an equation that represents the relationship between the length of a truss and the number of beams used. Show how you determined your equation. (“What changes and what stays the same?”)
- C. Using your equation, determine the total number of beams needed to create a truss of length 20. Show how you determined your answer.