

Determine the number of rectangles you can build using 1 unit, then 2 units, and so on, up to 25 units. Use the rectangles to determine how many positive factors each number has. Fill in the blanks.

1 has only one factor: 1



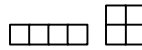
2 has only two factors: 1, 2



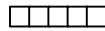
3 has only two factors: _____



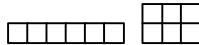
4 has three factors: 1, 2, and 4



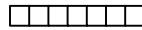
5 has only two factors: _____



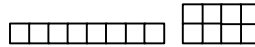
6 has _____ factors: _____



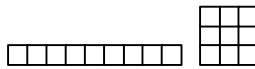
7 has only two factors: _____



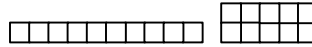
8 has _____ factors: _____



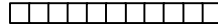
9 has _____ factors: _____



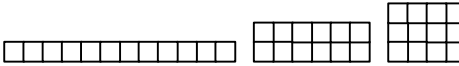
10 has _____ factors: _____



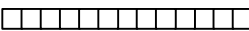
11 has only two factors: _____



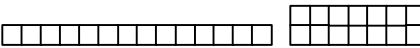
12 has _____ factors: _____



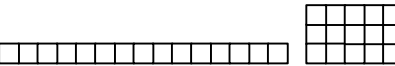
13 has only two factors: _____



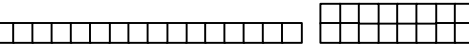
14 has _____ factors: _____



15 has _____ factors: _____



16 has _____ factors: _____



17 has _____ factors: _____

18 has _____ factors: _____

19 has _____ factors: _____

20 has _____ factors: _____

21 has _____ factors: _____

22 has _____ factors: _____

23 has _____ factors: _____

24 has _____ factors: _____

25 has _____ factors: _____

Below each number listed across the top, we identify natural numbers (from 1 to 37) that have that number of factors. For example, 4 is in the 3 column because 4 has three factors: 1, 2, and 4.

1	2	3	4	5	6	7	8	9
1	2	4	6	16	12		24	36
	3	9	8		18		30	
	5	25	10		20			
	7		14		28			
	11		15		32			
	13		21					
	17		22					
	19		26					
	23		27					
	29		33					
	31		34					
	37		35					

1. What patterns do you see forming?
2. Will there be any other entries in the 1 column? Why?
3. What are the next three numbers in the 3 column?
4. Find an entry for the 7 column.
5. What kinds of numbers have an odd number of factors? Why?