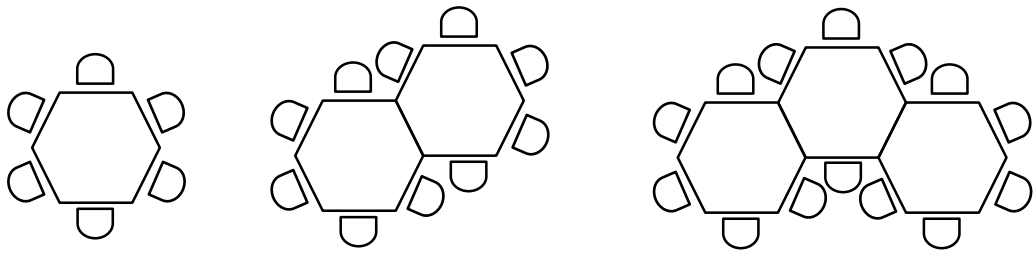
Topic Check In - 6.06 Sequences

1. Find the next two numbers in this sequence 2, 6, 10, 14, ……, …….
2. Find the next two numbers in this sequence 3, 5, 9, 17, ……, …….
3. Find a number bigger than one which is both a square and a triangle number.
4. Find a number bigger than one which is both a square and a cubic number.
5. Write down the first five terms of the sequence with the rule $n - 2$.
6. Gemma writes down the sequence 1, 3, 6, 11, 15, 21, 28. Identify which number does not fit the sequence and explain why.
7. Lia states that the rule for the sequence 3, 4, 5, 6….. is $3n + 1$. Explain why she is not correct.
8. Explain how the sequence 3, 6, 9, 12, …. can be changed to 5, 8, 11, 14,….
9. The third and sixth terms of a linear sequence are 15 and 27 respectively. What is the first term?
10. A sequence starts at one and then continues by multiplying the previous term by a number and then subtracting two each time. The first two terms are 1 and 3. Work out the next two terms in the sequence.

Extension

A conference room is to be filled with hexagonal tables connected together and surrounded by chairs, as shown below.



a) If there are 50 delegates at the conference, 50 chairs will need to be set out. How many tables will be needed?
b) How many tables will be needed for 100 delegates?
c) If the conference room can only hold 100 tables, what is the maximum number of delegates?

Answers

1. 18, 22
2. 33, 65
3. 36
4. 64
5. -1, 0, 1, 2, 3
6. 11 should be 10. This is the triangular number sequence.
7. Should be $n + 2$. Sequence goes up in 1s starting at 3.
8. Add 2 to each term or $3n$ becomes $3n + 2$.
9. 7
10. 13 and 63 (rule is × 5 and – 2).

Extension

a) 12

b) 25

c) 402

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AO1	1	Continue a sequence involving adding.			
AO1	2	Continue a sequence involving multiplying.			
AO1	3	Recall and use square and triangle numbers.			
AO1	4	Recall and use square and cube numbers.			
AO1	5	Use a position to term rule to generate a sequence.			
AO2	6	Identify an error in triangle numbers.			
AO2	7	Generate a sequence using a term-to-term rule.			
AO2	8	Explain link between sequences using position-to-term rule.			
AO3	9	Use a series of processes to solve a sequence problem.			
AO3	10	Investigate terms in order to determine missing values.			

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