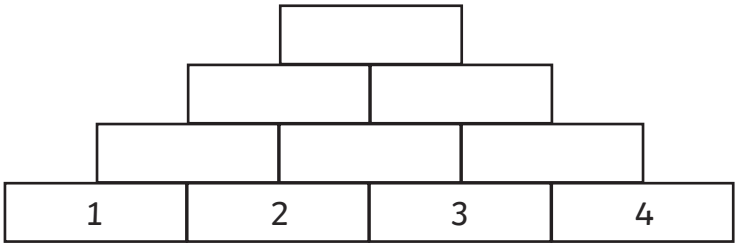
Towers (4)

Place the numbers 1, 2, 3 and 4 in the bottom of a tower. Add the adjacent numbers to make the number above. What is the total at the top? _____



1. If you change the order of the numbers, do you get the same total at the top? Use the attached pyramid sheet to investigate.

_____

2. What is the highest and lowest possible total at the top?

_____

3. Try the numbers 2, 3, 4 and 5. What happens to the lowest and highest totals? Use the attached pyramid sheet to investigate.

_____

_____

_____

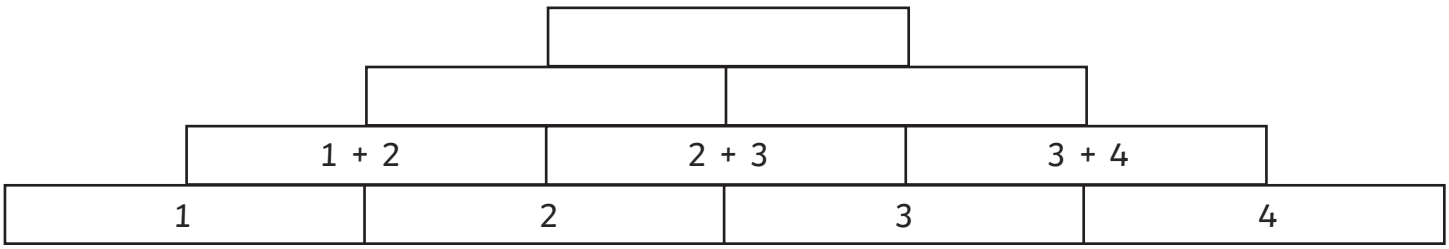
4. What would the highest and lowest totals be for 3, 4, 5 and 6? Use the attached pyramid sheet to investigate.

_____

_____

_____

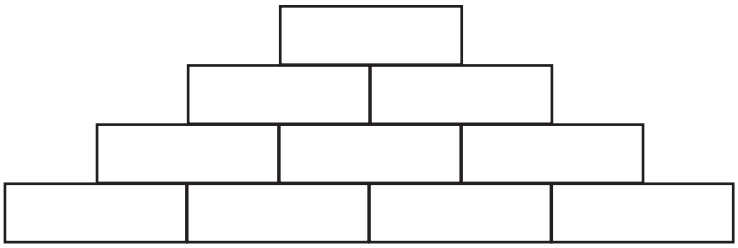
5. By writing the sums in each box, write the sum for the total at the top.



Towers (4)

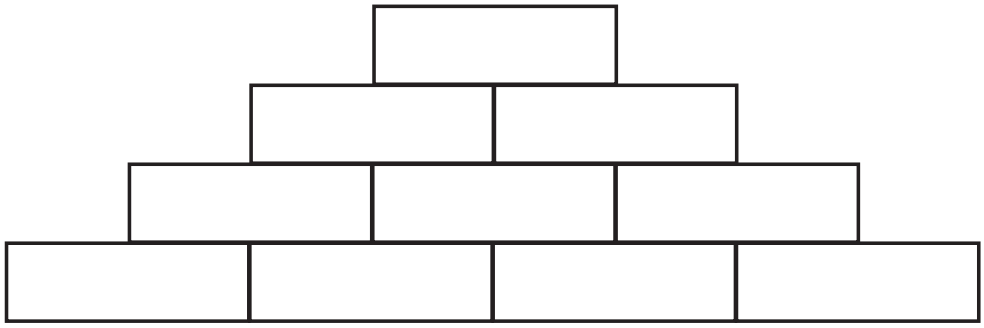
Challenge (Formulas)

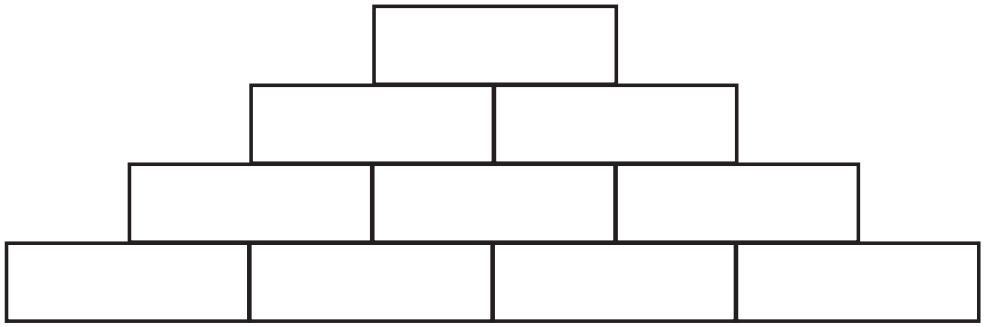
6. Replace the numbers in the bottom row with letters a, b, c and d. Find the formula for the sum at the top.

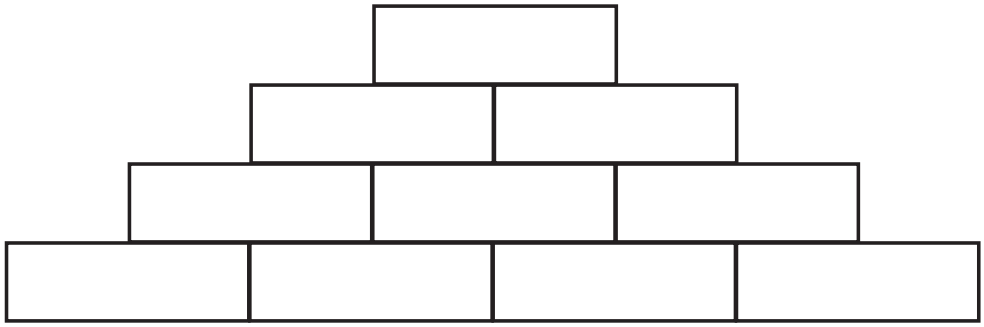


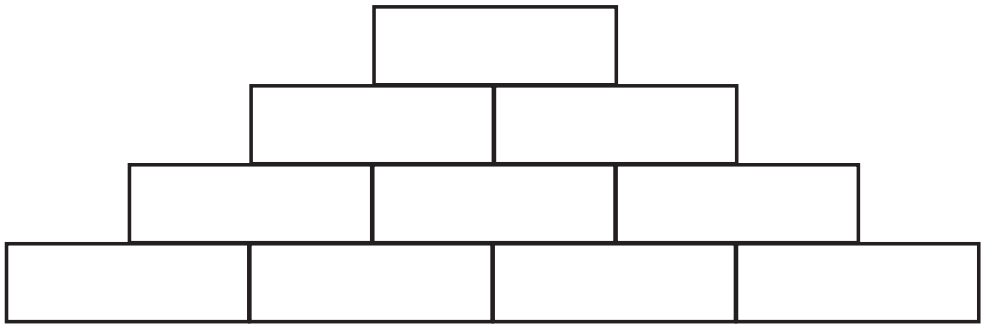
7. What would the formula be for different-sized towers?

Towers (4)



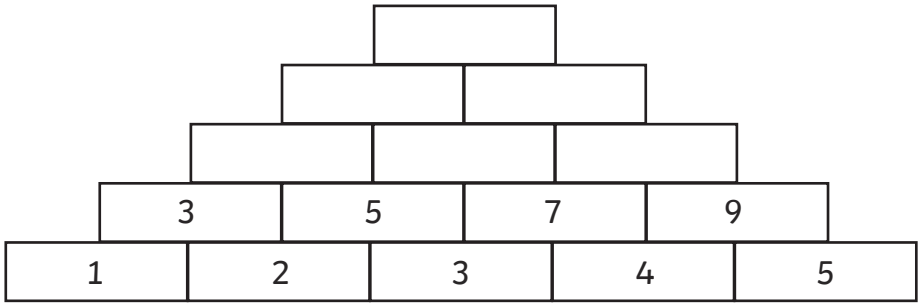






Towers (5)

Place the numbers 1, 2, 3, 4 and 5 in the bottom of a tower. Add the adjacent numbers to make the number above. What is the total at the top? _____



1. If you change the order of the numbers, do you get the same total at the top? Use the attached pyramid sheet to investigate.

_____

2. What is the highest and lowest possible total at the top?

_____

3. Try the numbers 2, 3, 4, 5 and 6. What happens to the lowest and highest totals? Use the attached pyramid sheet to investigate.

_____

_____

_____

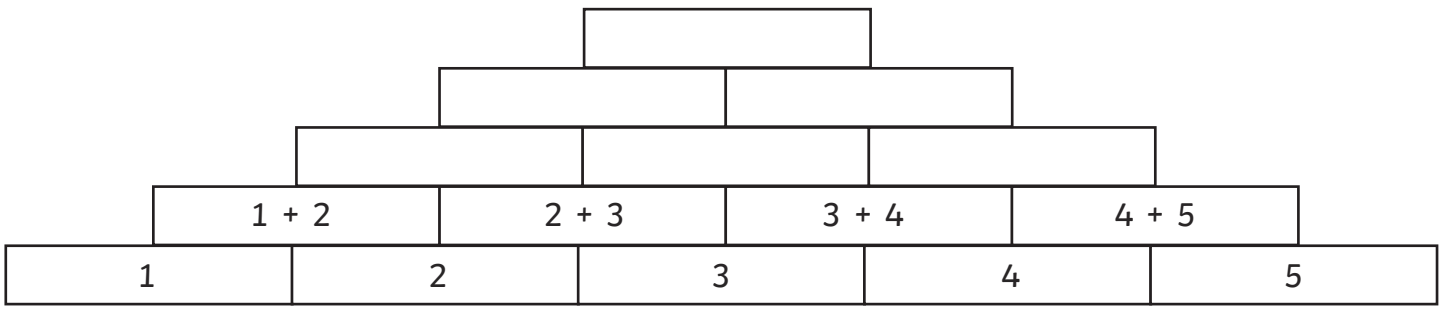
4. What would the highest and lowest totals be for 3, 4, 5, 6 and 7? Use the attached pyramid sheet to investigate.

_____

_____

_____

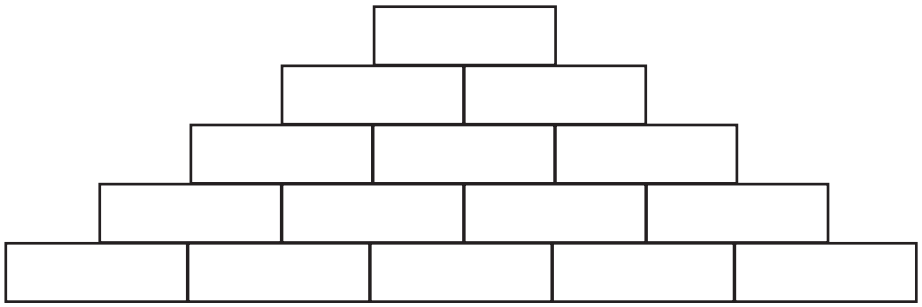
5. By writing the sums in each box, write the sum for the total at the top.



Towers (5)

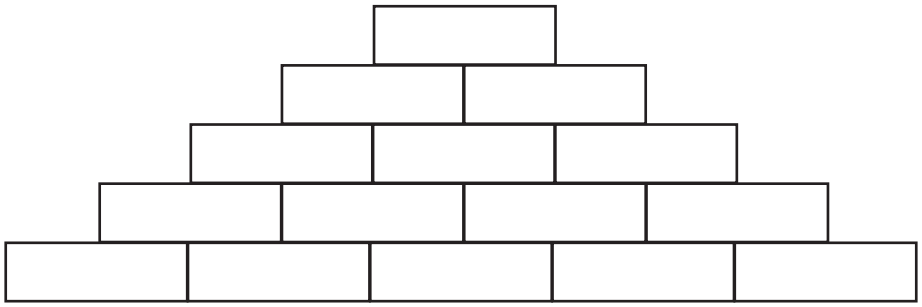
Challenge (Formulas)

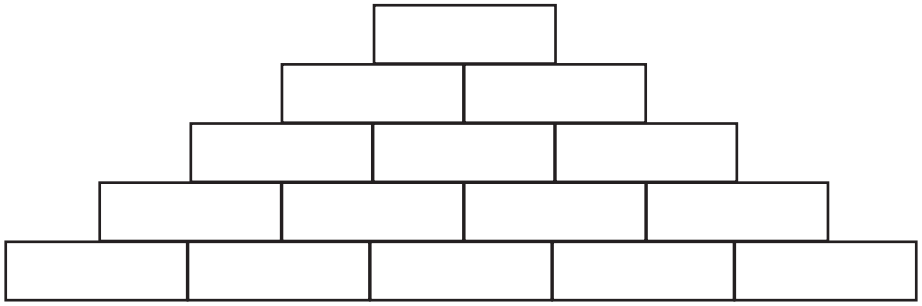
6. Replace the numbers in the bottom row with letters a, b, c, d and e. Find the formula for the sum at the top.

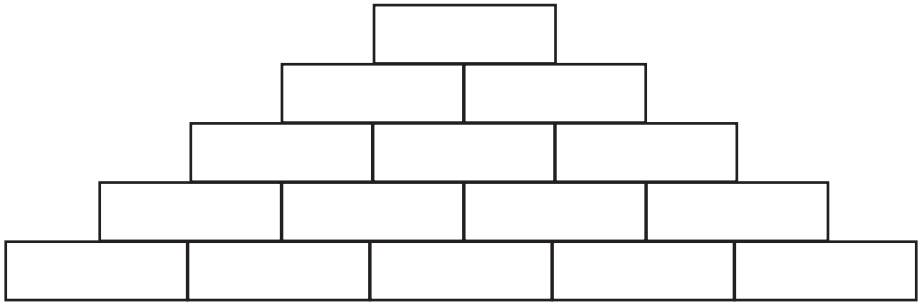


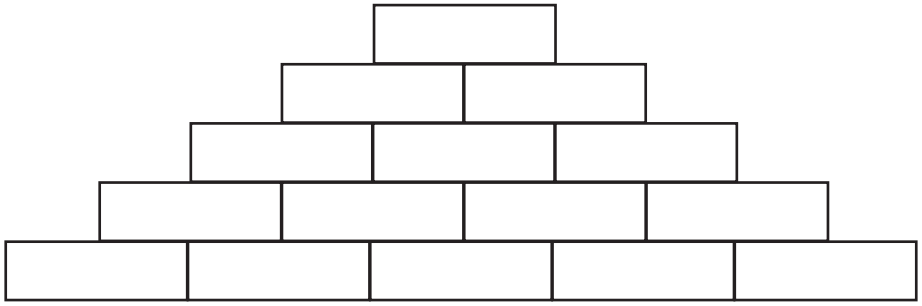
7. What would the formula be for different-sized towers?

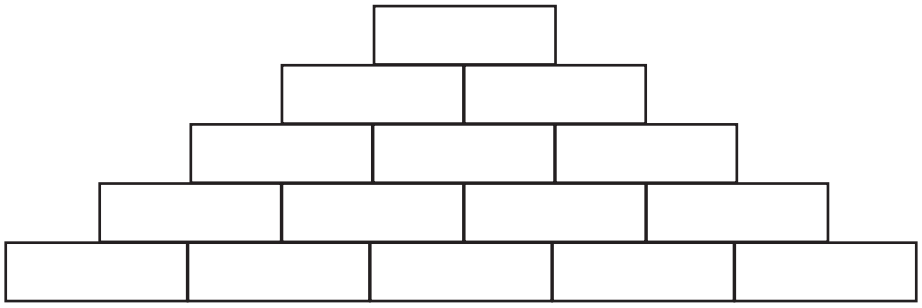
Towers (5)











Answers

Towers 4	Towers 5
Total 20	Total 48
1. No	1. No
2. Highest 24, lowest 16	2. Highest 65, lowest 35
3. Highest 32, lowest 24	3. Highest 81, lowest 51
4. Highest 40, lowest 32	4. Highest 97, lowest 67
5. 1 + 2 + 2 + 2 + 3 + 3 + 3 + 4	5. 1 + 2 + 2 + 2 + 2 + 3 + 3 + 3 + 3 + 3 + 3 + 4 + 4 + 4 + 4 + 1
6. a + 3b + 3c + d	6. a + 4b + 6c + 4d + e

7. The pattern uses Pascal's triangle.

Tower	Pascal's Triangle	
1	1	a
2	1 1	a + b
3	1 2 1	a + 2b + c
4	1 3 3 1	a + 3b + 3c + d
5	1 4 6 4 1	a + 4b + 6c + 4d + e
6	1 5 10 10 5 1	a + 5b + 10c + 10d + 5e + f

In Pascal's triangle 1's go on the outside and add the adjacent numbers to find the number below.