

What is the next number in the pattern?



135, 280, 425, 570, ____

☐ 635

☐ 715

☐ 725

☐ 755

The numbers in the table follow a particular rule.

Top number	3	6	7	9	11	14
Bottom Number	12	9	8		4	1

Which number should be used to complete the table?

☐ 5

☐ 6

☐ 7

☐ 10

What is the missing term in the sequence?

0.1, 0.7, 1.3, 1.9, — , 3.1



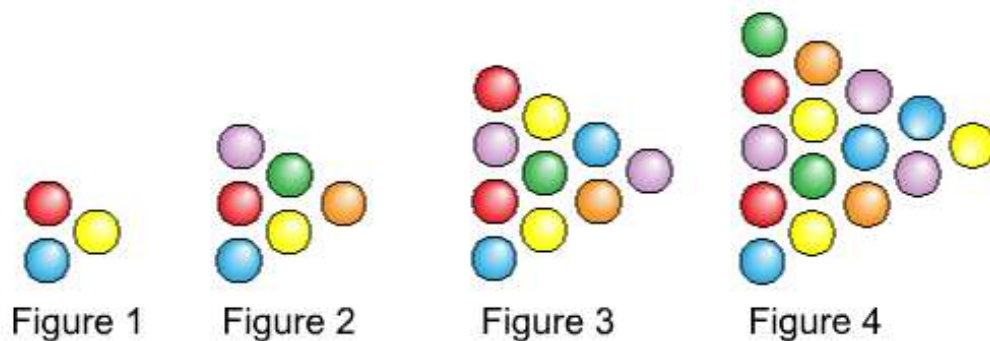
☐ 0.6

☐ 2.5

☐ 2.6

☐ 3

Balls are arranged in the pattern in the diagram below:



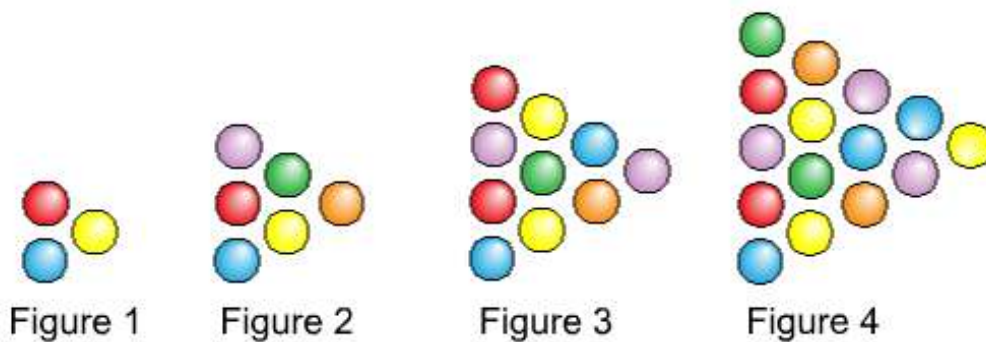
If the pattern is continued, how many balls would be needed for Figure 6?

☐ 19

☐ 25

☐ 28

☐ 44



If the pattern is continued, which figure will have 55 balls?

☐ Figure 8

☐ Figure 9

☐ Figure 10

☐ Figure 11

Sasha watches people greeting each other with handshakes and summarises the data in a table.

Number of people	2	3	4	5	6	7	8	9	10
Number of handshakes	1	3	6	10					

When a group of 10 people greet each other, how many handshakes occur?

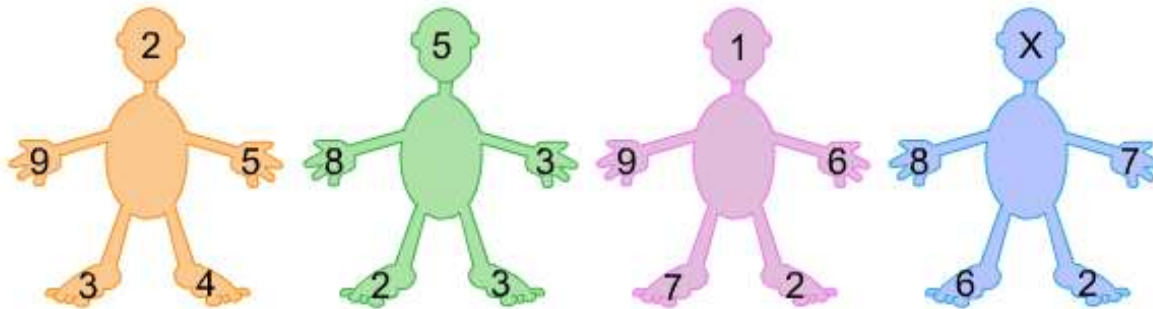
☐ 27

☐ 35

☐ 45

☐ 55

The diagrams in this puzzle look like people.



The numbers in each 'head' have a numerical relationship to the numbers in the 'hands' and the numbers in the 'feet'.

What is the value of X?

☐ 3

☐ 4

☐ 5

☐ 6

The table shows three number sequences.

Row 1 has been completed but some entries are missing from Row 2 and Row 3.

Row 1	1	2	4	8	16	32	64
Row 2	1	3	5	7	9	11	
Row 3	2	5	9	15	25		X

What is the value of X?

☐ 43

☐ 51

☐ 65

☐ 77

Here is a pattern of numbers:

6, 12, 8, 16, 12, 24, 20, __ , 36, 72

What is the number missing from the sequence?



☐ 32

☐ 40

☐ 42

☐ 44

Here is a pattern of numbers:

What number goes here?

5, 6, 8, 12, 20, 36, 68, —, —, —



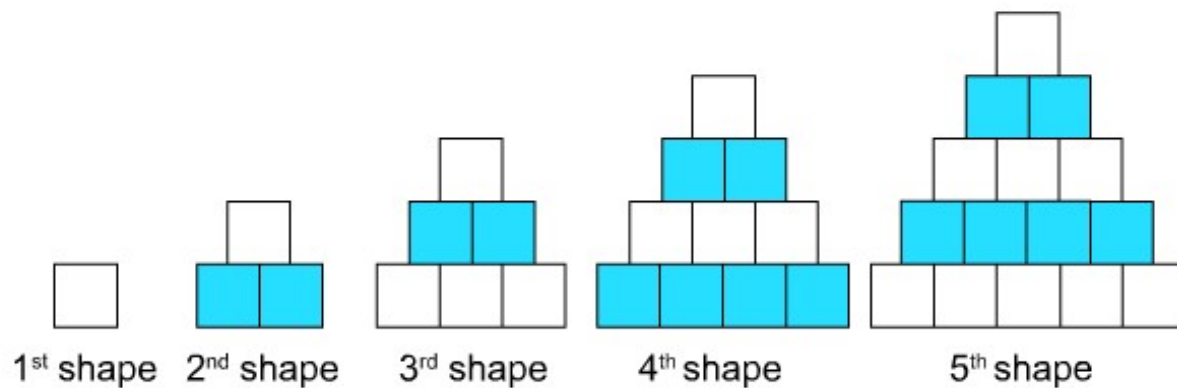
☐ 128

☐ 160

☐ 246

☐ 260

Naomi made this pattern using white and blue tiles:



If Naomi continues the pattern, how many white tiles will be in her 8th shape?

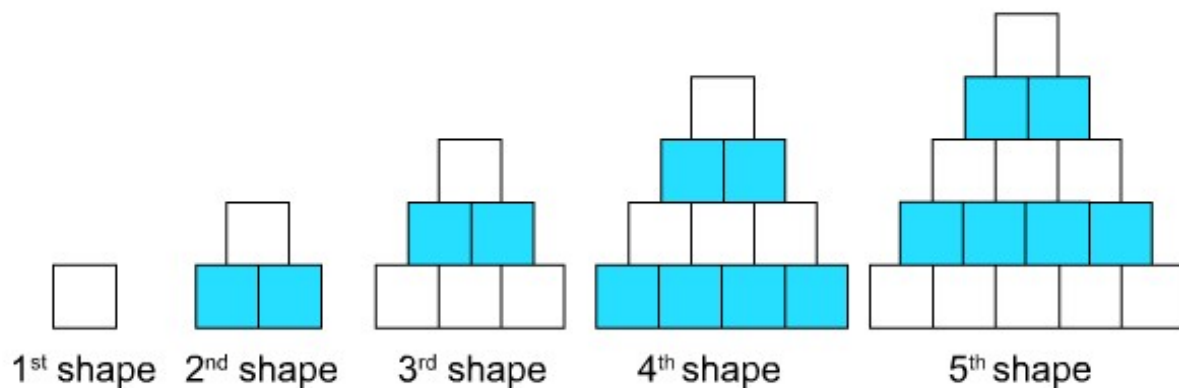
☐ 9

☐ 14

☐ 15

☐ 16

Naomi made this pattern using white and blue tiles:



If Naomi continues the pattern, how many blue tiles will be in her 9th shape?

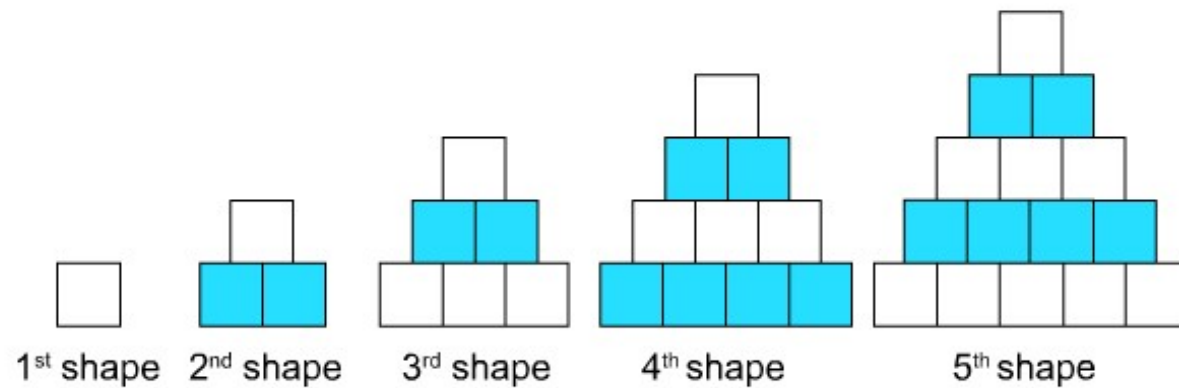
☐ 12

☐ 16

☐ 20

☐ 24

Naomi made this pattern using white and blue tiles:



If Naomi continues the pattern, how many tiles will be in her 10th shape?

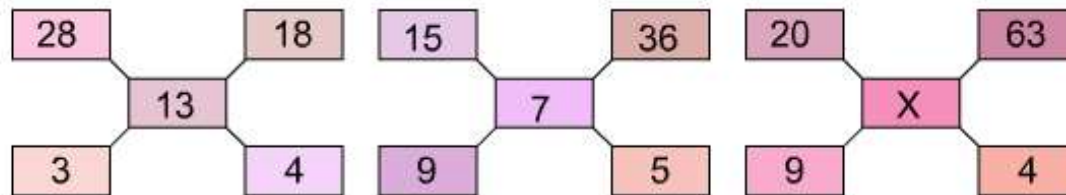
☐ 50

☐ 55

☐ 60

☐ 65

In each pattern, the number in the middle is found using a number sentence formed with the other four numbers.



What is the value of X?

☐ 12

☐ 18

☐ 27

☐ 36

Neridah wrote down the first few numbers in a sequence:



3, 6, 9, 12, 15, 18, 21, ...

She continued the sequence and found the 10th and 20th numbers.

What is the sum of the 10th and 20th numbers?

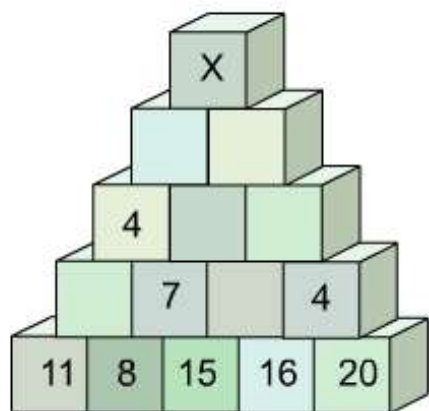
☐ 30

☐ 60

☐ 90

☐ 120

The numbers in the blocks follow a pattern.



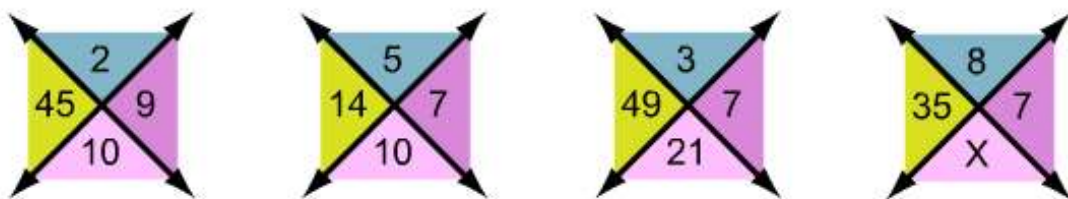
X =

☐ 1

☐ 2

☐ 3

☐ 4



The four numbers in each of the diagrams have a numerical relationship.

What is the value of X?

☐ 8

☐ 16

☐ 32

☐ 40

This grid is used to put words into code.

5	A	G	M	S	Y	4
4	B	H	N	T	Z	5
3	C	I	O	U	0	6
2	D	J	P	V	1	7
1	E	K	Q	W	2	8
0	F	L	R	X	3	9
	0	1	2	3	4	5

Using the grid, Norman wrote the code for the word LUCK as (1, 0), (3, 3), (3, 0), (1, 1).

Which letter did Norman put into code incorrectly?

☐ L

☐ U

☐ c

☐ K

The numbers in the square are found by multiplying the number at the start of the row by the number at the top of the column. When this product has more than one digit, the digits are multiplied together until a single digit remains. For example, to find the number in Row 6, Column 6: $6 \times 6 = 36$, $3 \times 6 = 18$, $1 \times 8 = 8$.

	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	4	0	2	4	6	8
3	3	6	9	2	5	8	2		
4									
5									
6						8			
7									
8									
9									

One row begins 9 8 4 ...

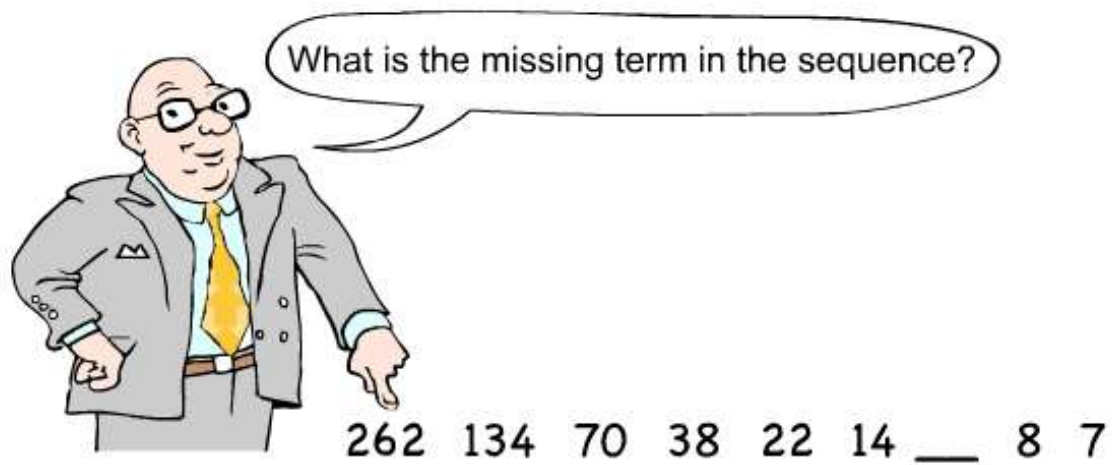
Which is the complete pattern for that row?

☐ 9 8 4 8 0 8 0 4 8

☐ 9 8 4 8 0 0 8 4 8

☐ 9 8 4 8 4 0 0 4 8

☐ 9 8 4 8 4 8 8 4 8



☐ 10

☐ 11

☐ 12

☐ 13