

Square and Triangular Numbers

ANSWERS

1

These are the **square numbers**.
Draw the next pattern. Complete the table.



Pattern	1	2	3	4	5
Dots	1	4	9	16	25

2

These are the **triangular numbers**.
Draw the next pattern. Complete the table.



Pattern	1	2	3	4	5
Dots	1	3	6	10	15

3

These are the **square numbers**.
Draw the next pattern. Complete the table.



Pattern	2	3	4	5	6
Dots	4	9	16	25	36

4

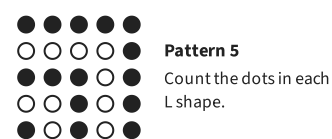
These are the **triangular numbers**.
Draw the next pattern. Complete the table.



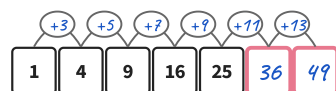
Pattern	2	3	4	5	6
Dots	3	6	10	15	21

5 *Notice the change!*

Find the next two **square numbers**.
Write each jump in its bubble.



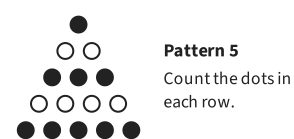
L shapes $1 + 3 + 5 + 7 + 9 = 25$



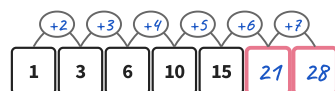
The jump grows by **2** each time.

6

Find the next two **triangular numbers**.
Write each jump in its bubble.



Rows $1 + 2 + 3 + 4 + 5 = 15$

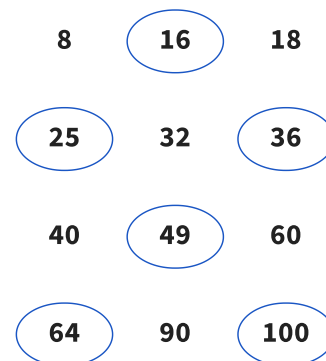


The jump grows by **1** each time.

7

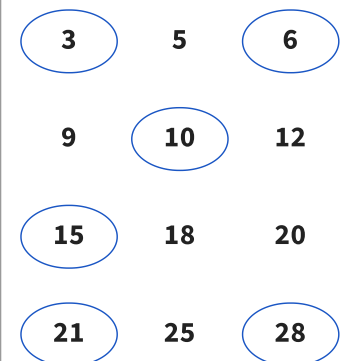
Notice the change!

Circle the **square numbers**.



8

Circle the **triangular numbers**.



Square and Triangular Numbers *further practice*

ANSWERS

9

Here are six numbers.

12 16 21 28 35 49

Write down the square numbers and the triangular numbers.

Square $16, 49$

Triangular $21, 28$

10

Each pattern of the square numbers is a square of dots. Which pattern has 121 dots?

$11 \times 11 = 121$

Answer $Pattern\ 11$

11

Which is bigger, the 8th square number or the 10th triangular number?

64 and 55

Answer $the\ 8th\ square\ number$

12

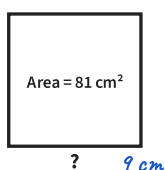
A gardener plants bulbs in a triangle. There is 1 bulb in the first row, 2 bulbs in the second row, 3 bulbs in the third row, and so on. There are 9 rows. How many bulbs are there altogether?

$1 + 2 + 3 + \dots + 9$

Answer 45

13

A square has an area of 81 cm^2 .
How long is each side?



$9 \times 9 = 81$

Answer 9 cm

14

Two triangular numbers next to each other in the list 1, 3, 6, 10, ... add up to a square number.
For example, $6 + 10 = 16$.
Which two triangular numbers next to each other add up to 49?

$1, 3, 6, 10, 15, 21, 28$

Answer $21\text{ and }28$

15

Ella has 30 counters. She makes the biggest triangle she can, with 1 counter in the top row, 2 counters in the next row, and so on.
How many counters are left over?

$1 + 2 + \dots + 7 = 28$ (8 rows need 36)

Answer 2

16

Kai says that 16 is the 8th square number, because $2 \times 8 = 16$.
Is Kai right? Explain.

$16 = 4 \times 4$, the 4th

the 8th is $8 \times 8 = 64$

Answer No